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THE WILD WISDOM of Weeds

13 Essential Plants for Human Survival

KATRINA BLAIR

Foreword by Sandor Ellix Katz

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Advance Praise for *The Wild Wisdom of Weeds*

"Katrina Blair keeps it really simple and approachable. . . . Her recipes have inspired me to experiment with new ingredients in my ferments."

—**Sandor Ellix Katz**, author of *The Art of Fermentation*, from the Foreword

"Weeds used to be something you kill, eradicate, make war on, get rid of. But weeds are the plants that thrive, and *The Wild Wisdom of Weeds* is a much-needed guide to understanding the virtues these plants possess and the wisdom of knowing them, using them, and keeping them around. Weeds are clearly more important than we have imagined."

—**Deborah Madison**, author of *Vegetable Literacy*

"Covering a small number of the most common edible/medicinal plants in depth, *The Wild Wisdom of Weeds* offers information on these species and their close relatives from multiple perspectives. From identification, harvesting, and uses, through personal experiences and philosophy, to science and mysticism, this book has it all. Wherever in the world you live, whether you're a beginner or experienced forager, you'll have lots of fun reading and using this book."

—**"Wildman" Steve Brill**, naturalist and author of the foraging app *Wild Edibles*

"*The Wild Wisdom of Weeds* provides a beautiful and empowering exploration of wild foods, helping you to identify, prepare, and celebrate edible weeds that you might otherwise overlook with simple tips on medicinal use, and charming, nutrient-dense recipes. A must-have for any beginning or serious forager."

—**Jennifer McGruther**, author of *The Nourished Kitchen*

"This is the kind of information that should precede gardening and farming. Katrina Blair expertly shows that before picking up a hoe or spreading a single seed, we can turn to our yards, fields, and forests for so many of the foods and medicines we need to live well. *The Wild Wisdom of Weeds* is a gem and will be foundational reading for anyone wanting to live close to the

goodness of this Earth."

—**Ben Falk**, author of *The Resilient Farm and Homestead*

"*The Wild Wisdom of Weeds* is one of those rare and important books that have the capacity to radically alter your view of a world you thought you knew well. You'll never look at weeds the same again!"

—**Ben Hewitt**, author of *The Nourishing Homestead* and *The Town That Food Saved*

"I don't know anyone more qualified to write this book than Katrina Blair. I've seen her go into the woods to harvest wild plants and 'weeds' and then transform them into gourmet meals later that day that rivaled the best from any fancy restaurant. She definitely knows her stuff and I am proud she wrote *The Wild Wisdom of Weeds*."

—**Markus Rothkranz**, author of *Free Food and Medicine*

"Katrina Blair's great celebration of thirteen wild weedy plants that have followed human civilizations is a lively and passionate argument to change our attitude to weeds, to admire their resilience and high nutritional value, and to embrace them as a valuable resource—at the same time improving our mental and physical health by becoming closer to the natural world. A fun and enjoyable read."

—**Martin Crawford**, author of *Creating a Forest Garden*

"Katrina Blair has written a comprehensive guide to thirteen foraged food plants that we can find anywhere in the temperate world, diversifying our diet while giving sensible guidelines to ensure we leave our wild plant colonies healthy. She encourages us to grow the weeds we love to eat, so we can literally forage on our doorsteps, and teaches us their medicinal properties, making food our medicine, too. This is an engagingly written manual of radical self-responsibility, full of recipes and information, that belongs on every bookshelf."

—**Maddy Harland**, editor and cofounder of *Permaculture* magazine

"Common weeds can be even more nutritious and medicinal than our favorite vegetables. Three cheers to Katrina Blair for sharing the depths of such friends as lambsquarter and purslane! Release your inner goat and go

graze. Use these fantastic recipes to become an inspired gourmet of wild things. This book radiates with thorough research and first-hand knowledge of plants that matter."

—**Michael and Nancy Phillips**, authors of *The Herbalist's Way* and *The Holistic Orchard*

"This may be the most important book you will ever read. Far more than just a book about foraging, it offers, with comforting clarity, hope for the future of feeding the world when before there seemed to be none."

—**Nomi Shannon**, RawGourmet.com

"Required reading for the survival of our species! What can we do to live more sanely in an increasingly insane world? Katrina Blair offers a new world of possibilities. The myriad brilliant insights and pragmatic solutions within *The Wild Wisdom of Weeds* are essential and evolutionary."

—**Happy Oasis**, adventure anthropologist and founder of Raw Spirit Festival

"For more than a decade, I have been learning about the outstanding value of common weeds as survival food, as free and natural 'live' foods with nutritive values far exceeding those of store-bought greens, and as sources of natural medicines to help restore health to bodies robbed of their vitality by the toxins, stresses, and poor diets of our modern world. There are thousands of wild edible plants on our planet, most of which are unpleasant to eat and difficult to locate or identify. Many of us wonder where and how we might best begin to learn to find and use these wild edibles. Katrina Blair's *The Wild Wisdom of Weeds* is the perfect handbook for taking this journey back to better health, vitality, food security, and peace of mind, by learning to collect and use thirteen common nutritious and delicious wild weeds that grow pretty much everywhere that people live. It is a fantastic resource, and I highly recommend it!"

—**Matthew Stein**, author of *When Disaster Strikes* and *When Technology Fails*

THE WILD WISDOM of Weeds

13 Essential Plants for Human Survival

KATRINA BLAIR

Foreword by Sandor Ellix Katz

Chelsea Green Publishing
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Disclaimer:
Although all cultures on Earth use wild, local, and living plants for food and medicine, this book is intended to inspire further exploration and research with the specific plants and foods growing near each individual's community. We do not claim to offer expert advice from the writings within this book. We give the reader full responsibility for being the ultimate authority for their own health and well-being. We expect the reader to consult with local plant guides and teachers to continue their study on the wild foods and medicines of their region to positively identify and utilize the specific plants described in this book. We give full responsibility to the reader for the use or misuse of any of the information found in this book—for any accident or injury caused by harvesting, handling, or ingesting plants or from attempting to follow processes described in this book. We trust that you will listen to your intuition and make good choices according to your individual situation and needs.

In gratitude

I give a deep, heartfelt thank-you to my family. You are the ground that I stand on!

I send a hug blessing of gratitude to all the Turtles working in service to quality of life.

I thank all my amazingly supportive friends and my community for your love.

I give thanks to the universe for the divine opportunity of this present moment!

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Foreword

Most of the weeds featured in this book are old friends of mine; a few are new acquaintances I look forward to getting to know better. When I find myself in some new place, these old friends generally greet me and provide me with a sense of familiarity. I graze on them when I feel hungry, and use them as medicine when I feel sick or run down. I have confided in them and listened to them. They have been a steady and reliable presence in my life.

Decades ago, when I was still living in my native New York City, my yoga teacher, Judith, invited me to visit a community garden in our neighborhood with her. I imagined we would be harvesting vegetables, but chickweed and nettles were what she was after. She started pointing out dandelions growing in cracks in the pavement and other irrepressible wild plant presences in the urban jungle. Later, she took me on harvesting expeditions to big parks. What had previously been, in the words of the late Frank Cook, my friend and a gifted and generous plant teacher, a “green wall”—the undifferentiated and barely noticed world of plants around me—took on a new significance, as I began to notice familiar friends everywhere I went.

In our contemporary society, most people grow up with minimal connection to the natural world around us. Most of us can identify many more corporate logos than plants. Yet plants are incredibly important and without them we could not exist. They are essential parts of our biological context. This disassociation leaves a void within us and around us, and there exists a widespread hunger to reclaim our knowledge of and connection to plants, from growing and harvesting, to cooking and fermenting, to foraging and wildcrafting. We crave a greater sense of connection and interconnection, a more balanced life, in tune with nature and sensitive to our environment and resources. On the one hand, this is so simple. Go outside. Look around. Observe. Ask questions. Interact. And yet there are so many plants, so many animals, so many insects, so much we cannot even see. How can we know it all?

The answer is that we cannot and we do not. But in our hunger for

reconnection, we have to start somewhere, and looking at the most common weeds, found almost everywhere people exist, is a great place to start. One of the things I love about this book is that rather than attempting to be encyclopedic, Katrina Blair keeps it really simple and approachable. Whether you are in a big city, in a remote rural location, or a suburban subdivision, you can probably go outside your home, find some of these common plants, and begin interacting with them and making them part of your life. Her recipes have also inspired me to experiment with new ingredients in my ferments.

These thirteen common plants that thrive especially in human-disturbance zones are tough and resilient survivors. We need their tenacity and ability to adapt, and their proximity and plenty make them more relevant than exotic or rare elixirs, superfoods, and remedies. Katrina Blair urges us to graze on them, use them as medicine, ferment them, eat them fresh, dry them for tea, and let them soothe your skin. This book will give you great motivation, information, and inspiration to start (or continue) getting to know some of your nearest and most important neighbors.

—Sandor Ellix Katz

Preface

The Great Spider Myth

Once before there was time or even space, there was just the Great Spider. She contained everything in the universe in her deep-black body. The universe was very unified as One. It was void of any dialog or difference. Although spacious, the lack of another made the universe a stagnant and empty place. The Great Spider began to feel a sadness overcome her that was rooted in a sense of loneliness. Her lonely feelings grew inside her like a glowing ember. One day, the Great Spider brewed in her belly a fire from these feelings that was so hot that it ignited the spark of life. In her belly, the essence of life was brewing. Her belly became red and hot and full to the point of bursting. All of a sudden, she opened her belly and a diversity of life exploded into the world like the most colorful fireworks imaginable. No two creatures were alike.

One by one the unique life-forms move into every possible environment. Some were able to fly and live in air, some were able to swim and lived in water, and some were able to breath and live on land. Even though they each were different, they all were family and related to each other as kin because they came from the same mother, the Great Spider. Every creature was born with a unique and special gift to share with the world. The gift revealed itself when each creature followed the passionate feeling of joy found deep within its heart. This passion was a guide for living in health and happiness while offering a gift in service to all others. The Great Spider knew that if all creatures lived out their passionate service, the world would be a place of sustained harmony for eternity.

In joy she sang her song of creation . . .

Ohla la bohuna ya laho yeh he la lo koyando aho ohm bo holano.

Sure enough, life began to unfold itself in so many unique expressions—algae, fungi, flowers, trees, worms, snakes, insects, birds, wolves, lions, polar bears, dolphins, monkeys, human beings, and banana slugs. Such

variety! Within all the diversity of life, there was a natural give and take. A passion of one would give over to another and a cycle of life evolved like a kaleidoscope of beautiful, interweaving, changing expressions. For millennia this formula of life worked harmoniously.

Then one day something in the great exchange of all life began to shift out of balance. A dominant force was growing and it was beyond any individual life-form. This powerful influence became known as the Big System (BS). The BS was cultivated by the two-legged ones, the human beings who walked upright on the Earth. Humans created the Big System (back when it was only just a small system) with the intention to control nature. It was a way that the humans could get more by giving less. They started to control plants and made them grow in rows to get more with less work. Then they began to control animals and fence them in pens to get more meat, milk, and eggs with less giving back. The Big System grew year after year until it started to have a life of its own. The Big System was hungry and needed to be fed every day. Pretty soon it even started to control the humans. The Big System forced humans to sacrifice their original passionate gift and become its slaves.

The Great Spider observed the wildness within the humans slowly being refined out by the never-ending needs of the Big System. Humans became so enslaved by the Big System they began to accept this state of domestication as being normal and civilized. Symptoms of civilized living included eating distorted foods void of life, drinking drugged water no longer from the creeks and rivers, staying inside buildings shielded from the sun and outside air. Gradually a hazy fog of pollution was accumulating in the skies, the waters were becoming toxic, and the land was being tilled over by developmental progress. The Big System was demanding more and more of the humans' spark, sapping their passion, and dimming their connection to their purpose.

The Big System continually needed more Earth resources to keep it alive; it needed tons of water, and much more land. It did not care about the trees and animals and other creatures living on the land and in the water. The Big System only wanted to grow bigger and bigger and not give back. The Big System lacked the heart that all other creatures were born with when they emerged from the belly of the Great Spider. The Great Spider witnessed all of life suffering.

In sorrow she sang . . .

Waala lena yaha hola ya nay ho la ho waah la lena ho ya ho no.

For many years the Great Spider felt a deep sorrow, watching the destruction of her family due to the Big System. Her sadness grew so strong that the feeling began to develop inside her like a glowing ember. Again the Great Spider brewed in her belly a fire from these feelings that became so hot that it ignited a new spark of life within her. In her belly millions upon millions of tiny seeds were born. These seeds were the wild weeds of the world. When the moon was new, she opened her belly and released these seeds to thrive on every land, near every ocean, and in every city on the Earth. She gifted these seeds with the ability to travel the world and live in diverse conditions to be close to every human on the planet. Great Spider created these wild seeds to be able to withstand the cold, high elevation, droughtlike conditions, and disturbed grounds. Millions of these wild weed seeds traveled the world by wind, water, animals, birds, feet, and pockets of the two-legged ones.

The Great Spider knew that if humans could create the Big System, the humans could also get rid of it; but it was so out of control, they needed help. Reigniting the passionate feeling of service in the human heart would be the key to unraveling the Big System. The wild weeds were sent as messengers to help. Once the seeds sprouted and grew into strong, resilient plants, they had the potential of imparting strength back into the humans and reawakening the primal memory of interconnectivity deep in their hearts. Could the wild weeds bring humanity back into harmony with the rest of creation?

These seeds were spread throughout the entire world and took root. The Big System recognized the wild weeds as invaders and a threat to its very existence. The Big System initiated a war on weeds to try and eradicate every single one of them. It used concentrated poisons, weed whackers, and backhoes to eliminate them. These tactics slowed them down a little, but the weeds came back year after year. They had brilliant survival skills! No matter how hard the Big System tried to kill them off, they would not be defeated.

Eventually some humans began to take notice of what was growing underneath their feet. The brave ones living in the four corners of the globe

began tasting and sampling these common wild weeds. They actually liked their flavor and even loved the way they made them feel. Word spread like wildfire around the world, and one by one humans gained momentum in eating the wild weeds. They harvested them by their homes, cities, and in neglected fields. They started using the plants for healing medicine. A new kind of intelligence and deep wisdom entered into the cellular matrix of each body. As the weeds entered into the bodies of the humans, a primal knowing awakened. They remembered a thread back to their original ancestry. This memory ignited a light within their being. They began to reconnect to their intuition, and embrace their wild instinctive abilities to survive without the Big System.

The more humans ate the wild weeds, the more they noticed a feeling was stirring in their hearts. This feeling tapped into a distant yet deep memory of their true source of creation. This tickle turned into a burning desire that became unstoppable. It was like a web of passion leading each of them back to their purpose for being alive. The feeling grew so strong in each human's heart until they knew. They knew why they were here on Earth! They were here to be of service and to participate in the great giving and receiving interconnected web of life. The humans were waking up and dropping out of the Big System. No longer were they driven to feed it, to be its slaves; no longer were they willing to let the Big System destroy wildlands, pollute water, and undermine all of life. The humans returned to knowing their basic needs and being satisfied with the simple pleasure of being alive. The wild weed–eating humans became revolutionaries and little by little started unwinding the BS. The Big System was never born with a heart of its own, so it quickly collapsed and composted into the bosom of the Earth where we can now see the smiling flowers of dandelion, mallow, plantain, purslane, lambsquarter, mustard, thistle, knotweed, amaranth, grass, dock, clover, and chickweed. Today all of life is thriving in service to each other while sharing their gifts in harmony with the joyful exchange of giving and receiving.
Let us rejoice! Together in celebration with the Great Spider, we all sing . . .

Heyla ho yalandana hela he me landa ho la mahe la yanda he ho la hey yanda la he la he he la ho yalandala heyandala ho yah he landa ho lande mana lo landa la ho alalaho!

—Katrina Blair, 2014

Part One

BACK TO BASICS

Introduction

Welcome to the Wild Thirteen

Welcome

Welcome to The Wild Wisdom of Weeds! This book is a celebration of our alignment with nature's currency of abundance. The guides of this journey are thirteen wild plants found growing all across the globe near human civilizations. The chosen thirteen include: amaranth, chickweed, clover, dandelion, dock, grass, knotweed, lambsquarter, mallow, mustard, plantain, purslane, and thistle. There are plenty of other wild edible plants common in many locations, such as nettles, chicory, burdock, yarrow, or horsetail. However, I have chosen these thirteen plants as the ambassadors of this book because of their extensive beneficial traits and wide availability that set them

apart from other plants. They are found commonly all around the globe next to human settlements, they are all both food and medicine, and they are exceptionally adaptable to a diversity of climate and landscape conditions. They offer a vital key for our species' well-being at this time. These plants create a bridge that connects us to a wilder state of being human. The same wild integrity that exists in plants growing in pristine wilderness areas is also found in the nature of the wild weeds growing in open lands around and in the margins of civilization. Wild weeds have an intrinsic wisdom for resilience and have mastered their abilities of survival. Although it is important to be mindful of where we harvest the wild weeds, it is also very possible that a dandelion freshly harvested from the sidewalk crack of a city may have superior nutritional value than a commercially grown salad green sold in a store. When we harvest our wild greens outside for our salads instead of going to the store, we benefit in so many ways. The wild greens outside are still vibrating with the life force and are at their peak nutritional potency! The freshness of immediate harvest cannot be overemphasized in its importance to supporting our health. Many of the nutrients become lessened or lost through time due to the duration of transportation and storage.

Cultivated plants have commonly been hybridized over time and grown as monocrops in compromised and often chemically enriched soils, making them more susceptible to diseases, pests, and environmental changes. These are just a few examples of some of the factors that reduce the resiliency and nutritional value of cultivated foods grown under the dominant influence of human intervention. Wild weeds have adapted through evolution toward stronger survival traits. They often grow in diverse plant communities and have root systems that can extract nutrients from a variety of soil conditions.

The wild weeds offer a direct link for accessing wild intelligence within each of us. As humans are becoming increasingly distant from daily access to the wilderness, the wild weeds bring a quality of integrity and healing frequencies into our civilized habitats. Over millennia, they have fine-tuned their equilibrium with the changing seasons of nature, increasing their instinctive nature to survive. Perhaps most importantly, these thirteen plants are accessible to most everyone living in a rural or urban area around the world. They offer a wealth of valuable gifts that enable us to thrive on planet Earth in this modern age, on any land, and in any culture.

The wild weeds in this twenty-first century offer a path to sustain us through these rapidly changing times. By learning more about them, what to look for, when to harvest them, and how to utilize them, in addition to how to honor their offerings, we are better prepared for adapting to the present moment and unknowable future times. This knowledge puts us in touch with the creative edge of nature and reminds us that we are also a part of it all. This book is a journey about remembering our identity, rooted in the wisdom of our indigenous ancestors, while living in today's modern civilization. These thirteen plants reach out from the wild and interface with our domesticated lifestyles, and assist us to awaken to our full potential of being human. *The Wild Wisdom of Weeds* offers a path to help align our species with the environmental patterns and forces of nature. It is a practical offering for simple abundant living that can lead to deep trust and a sense of belonging to the Earth where we live. Join me as we embark on this journey to meet and engage with our wild plant ancestors.

Wild Permaculture Plant Rap

There's a secret right beneath your toes
From the ground is where the riches grows
Everywhere in the world where humans live
Is a free super power that nature gives

You have thirteen weeds from which to choose
Use your intuition and you can't lose
You are wise, so when you take a little bite
Ask how much or how little to you feels right

If you eat these weeds every day
You'll feel wilder and wilder in every way
Look! All of the animals know what to do
Eat your wild greens and join the zoo—
It's a wild jam . . . (wild sounds) . . . Here we go!

The whole of the dandelion is a wonderful food
A little bitter little sweet puts you in the mood

Play the stems into a singing flute
Make your coffee from the roasted root

If you need a first aid kit
Plantain leaves and seeds are it!
Chew the leaves into a mash
To help with bites and stings and rash

The three-leaf clover has roots so deep
Pulls up minerals from a hundred feet
When we eat that clover flower and leaf
It builds our bones and strengthens our teeth

Mallow is mellow and good for your skin
It’s slimy and demulsifying
Blend the whole plant into a goo
To make your own lotion and shampoo

Chickweed is high in vitamin C
Delicate and yummy and tasty in your tummy
Eat the dock greens when they’re tender and sour
Grind the seeds to make your own flour

All mustard plants with petals of four
Are spicy and sweet enough to make you want more
The flowers come in pink, purple, yellow, and white
And get the creative juices flowing into the night.

Knotweed is a wild buckwheat
Grows low to the ground and it’s hard to see it
It’s nutty, and it’s special indeed
The funny thing about it, it’s not a weed!

All the wild grasses have eight amino acids
As a survival food, it could save your asses
Purslane is juicy and pretty
Grows in the cracks of every single city

Then there’s lambsquarter and amaranth
Guess which one makes the quinoa plant?
Both these two are high in protein
Eat them for muscles like Mr. Clean!

Don’t be afraid of the prickle of the thistle
Drink down the juice, it will make you want to whistle
Like a wild seed winging through the air
Waving its arms like it just don’t care
Put ’em up!

So that’s the secret and now you know
Where all the wild weeds grow
They grow near you and they grow near me
They are full of wealth but they’re actually free!

So help yourself as you say a little prayer
In thanks to these foods and medicines who care
About your ability to survive
To live in health and truly thrive!

—Co-written by Libby Kirpatrick, Tricia Gourley, Peach, and Katrina Blair

Thistle flower nectar

Why Are These Thirteen Plants Important at This Time in Modern History?

I am reminded of a quote that says, “The happiest people do not have the best of everything, they *make* the best of everything.” This quote speaks to me because the environment we have to work with today is not necessarily the best—in fact, in many ways it is far from ideal. We can witness today’s environment being compromised. Many species suffer and are nearing extinction from our continual impact on their native lands. We are all experiencing the effects of radioactive catastrophes and epic oil spills in the ocean. Our current population has *doubled* in only 43 years, from 3.5 billion in 1969 to 7 billion today, and it is projected to take approximately 60 years to reach 14 billion. The trends of human disturbances are inevitably going to continue to increase. And yet, when we make the best of our current situation, we can still reach optimal happiness and health. This book is about the wild weeds that can help take us there.

These thirteen wild weeds are a source of optimal food, requiring minimal resources to produce. They demand no petroleum products for their

growth and harvest and they are far more potent in nutrition than any crop grown by commercial agriculture. If we are going to be feeding twice as many humans in the near future, the wild weeds have the greatest potential to accomplish this feat. Feeding the world overtime will likely not happen through mineral-depleted monocrops that have been genetically modified and require excessive petroleum-based fertilizers and herbicides to survive.

Most all other wild creatures alive today have their primal instincts intact and know how to survive off the local environment in their region. They know what to eat, how to find shelter, and how to take care of themselves using the immediate resources available. We humans, however, have cultured ourselves away from these core skills of living. We may have forgotten how to eat off the land near our homes or how to find and make medicines from the plants growing nearby. We may have lost the intuitive ability to conserve energy and resources in our daily habits. We may be disconnected from fully living in an optimal state of health and happiness.

According to the timeline studies of paleontology and anthropology, humans developed into the current modern species, *Homo sapiens,* about two hundred thousand years ago. Our human ancestors throughout time have intimately known and embodied basic survival skills both individually and collectively. We could not have survived this far as a species if we did not consistently integrate the basic knowledge of how to harvest from the Earth as part of our livelihood.

Today, however, we rely more upon our highly advanced systems of technology for our survival rather than our basic primal Earth knowledge and skills that are intimately connected to our immediate local environment. Our foods and medicines typically originate from distant places, are processed into packages, stored, and transported to grocery stores. The technological advancements have proven to have many benefits for our ease and comfort, and in specific cases have improved the quality of life for many. However, along this path of convenience comes a huge undeniable risk. The potential hazards grow in severity as we continue the current approach of living with technology in the driver’s seat. The risks of this current path of civilization are multifaceted. There is a potential that our technological systems may fail us. This might mean that we run out of raw resources to sustain our advancements of efficiency and convenience. Additionally, the hazards of the by-products or pollutions coming from the

technological industries may build up in their toxic effects to the point of disease. There is also the risk that our systems of food distribution break down. Most cities are often seven days away from running out of food due to demand and supply chains; if these chains broke, we would have a week's worth of food available for the urban population. There is also the potential that our commercial agricultural practices will undermine the quality of food and species diversity to the point of scarcity. As we acknowledge these potential risks, we can observe that many of these trends are already in motion. These realizations are sobering, but they also help point us in a more regenerative direction and encourage us to be open to what available solutions might be within reach.

Our modern time can be an exciting new opportunity given the right perspective. One observable pattern is that wild weeds are coevolving with humanity in this fast-paced, changing environment, and by learning and integrating these available resources into our daily habits we can begin to make the best out of our current situation. It is a wise and sustainable practice to begin to engage in foraging the wild plants growing locally alongside our walkways and gardens and in our city alleys, abandoned lots, and the world's disturbed grounds. The journey of aligning with the wild force of nature is a true gift and a source of wealth for humanity.

Why Are These Thirteen Wild Plants Valuable?

The thirteen global plants included in this book each offer a host of attributes that provide simple solutions to many of the basic requirements that we need to live in a prime state of health. They can be utilized as complete food sources both consumed fresh and stored when the fresh greens, blossoms, seeds, and roots are harvested in season; they are an extensive medical pharmacy and first aid kit; and they have a myriad of additional values such as natural fibers, coloring dyes, mineral supplements, and health and beauty care. They meet the core health requirements of the human body in the form of complete proteins. They offer exceptional nutrition and provide an excellent source of minerals and vitamins that are readily available to us, often far beyond the value of a supplement pill. By finding local avenues to meet our basic requirements for living optimally, we conserve vast amounts of global resources that would otherwise be used for manufacturing,

packaging, and distributing.

Following the Path of Human Disturbance

The beneficial influence of these wild plants overlaps most of the globe. Because of their adaptive and resilient nature to grow across the world near human civilizations, they transcend cultures, dialects, and borders of people. In my world travels, no matter whether I was in the tropics or the arctic, I consistently found all thirteen plants—even as I walked off the plane in a variety of climates such as Alaska, Costa Rica, Japan, the Philippines, Mexico, and Finland, just to mention a few. These plants communicate in a universal language. What I mean by this is that they speak the language of our modern Earth through their connection to the changing conditions of the soil, the atmosphere, the climate, and the Earth's precipitation. They can grow in a diversity of landscapes, elevations, and climate differences. As we move into a global culture, they become important ambassadors of Earth at this time because of their ability to thrive in the niche of our human species' excessive impacts—such as sidewalk cracks, abandoned fields, roadsides, and lawn and garden edges.

The unique habitat of these thirteen wild plants is changing environmental conditions. Human beings have the common propensity for altering land, and this creates the specific conditions that encourage each of these plants to grow; they are rooted in our very disturbance. Because of their stout resilience, they are capable of growing in compacted soil, sourcing nutrients and water from extremely limited sources and enduring climactic variations. Out of all other species, humans are most skilled in the occupation of compacting and disturbing the land; our natural human patterns of disturbance inevitably create the conditions for the arrival of these wild species. They follow our footsteps impeccably and sow themselves in the wake of our activities. As we travel, build our homes, and perform our day-to-day living, we prime the environment for these wild plants to thrive. Wherever humans are living in permanent settlements there is a source of water. This water, whether it be wastewater runoff or waterways, is enough to support a habitat for the wild weeds. Even in areas of severe drought such as Ethiopia or Sudan, the wild species are adapted to find their niche in and around the edges of human communities.

Weeds as a Pathway to Resilience

By utilizing what is growing under our feet, humanity improves the quality of life for all beings on a local and global level. We gain access to an immense source of wealth by understanding the intrinsic values of these wild species growing around our homes and cities on the continents across the globe. By appreciating and integrating these plants into our daily lives this becomes possible. My intention for this book is to empower each of us to thrive within our local environments. Whether we are based at home or find ourselves traveling, knowing the value of these wild plants can empower each of us to maintain a state of optimal health with minimal cost and effort. Utilizing these common plants provides an opportunity for communities to build integrity within local regions. The weeds bring to light the basic concept that the whole world is a place where we can be nourished, embody health, know security, and be free to live a quality life.

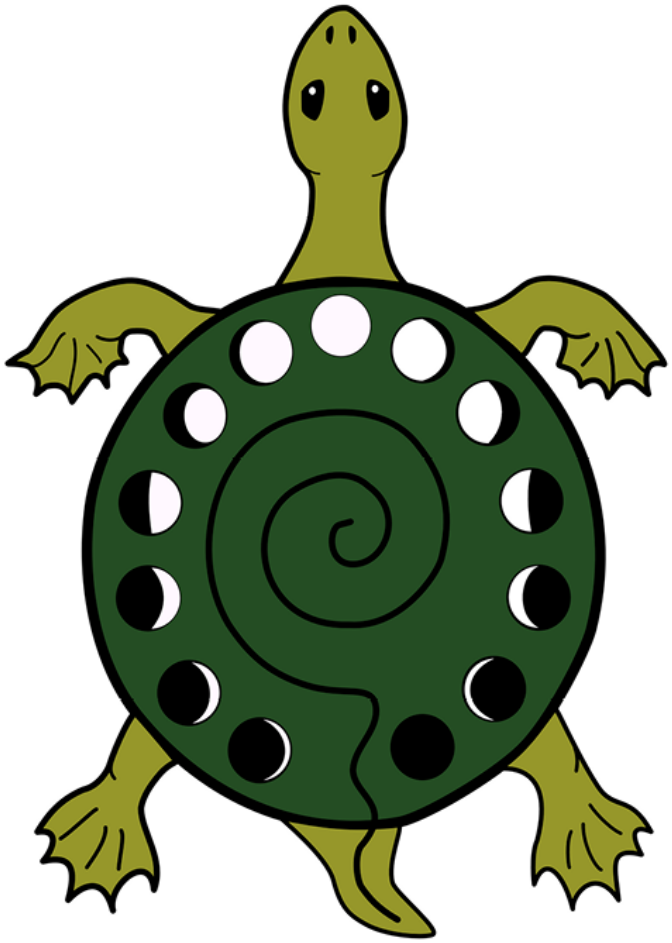
How to Use This Book

The Wild Wisdom of Weeds is a celebration of these often unseen and unappreciated heroes of our time. I highlight on a regional and global level how these widely accessible plants can be utilized in daily life through recipes for home use and self-care, and by generating social and economic community security. By sharing simple and repeatable practices, I hope to offer new options that can help reduce current problems and simultaneously benefit the health of our ecosystems. Unfamiliar wild ingredients can be creatively integrated into lifestyle habits in small steps that build local empowerment. Perhaps you are afraid of that slightly bitter dandelion staring at you from your backyard. Take back your power; dice it up finely in your dinner salad, add in a chopped sweet apple, and mix in a few other favorite salad ingredients. Voila! You have begun the path of embracing the magic of the wild ones. These weeds are freely available to each of us wherever we live on the globe, independent of our culture and economic status. They enable us to reach beyond the differences of humanity and embrace our universal common core need for quality of life. Ultimately, they can guide us to live in a state of primal optimal health. In light of our current global climate and potential environmental crisis, *The Wild Wisdom of Weeds*

unfolds a solution. This book provides a tangible way to connect with our sense of place by incorporating wild edible and medicinal plants into our daily practices. These thirteen plants will be our guides on this upcoming journey for living the good life! Note: I am including one common genus name and one common species name in this list, although in most cases the entire genus (including all the species) is interchangeable in edible and medicinal values. In two cases (mustard and grass) almost the entire family can be utilized similarly. There are more details in each individual plant chapter.

The Thirteen Survival Plants

1. Amaranth (*Amaranthus retroflexus*)
2. Chickweed (*Stellaria media*)
3. Clover (*Trifolium pretense*)
4. Dandelion (*Taraxacum officinale*)
5. Dock (*Rumex crispus*)
6. Grass (*Poa annua*)
7. Knotweed (*Polygonum aviculare*)
8. Lambsquarter (*Chenopodium album*)
9. Mallow (*Malva neglecta*)
10. Mustard (*Brassica juncea*)
11. Plantain (*Plantago major*)
12. Purslane (*Portulaca oleracea*)
13. Thistle (*Carduus nutans*)



Turtle Lake Refuge logo of moon cycle

The Magic of Thirteen

The number 13 is a powerful number that is associated with many natural rhythms and patterns found in nature. For example, one of the original timepieces for earlier peoples such as the Native American Iroquois tribe was a turtle shell. The shell makes the ideal calendar for keeping track of both the Moon and the Sun. There are 13 moon cycles in one year and each moon cycle takes 28 days. Each turtle shell has 13 main hexagons in the middle and 28 smaller hexagons along the side. In a complete year, where the Earth makes one cycle around the Sun, the Moon reaches full 13 times. The natural month is a 28-day cycle beginning at the new moon, going to full, and returning back to new moon. Turtle shells mirror a more accurate calendar and time record of the Sun and Moon’s natural cycles than the

modern Gregorian calendar of today. Even with the turtle shell timepiece, there is still one extra day in a solar year, requiring a similar leap-year solution. In the Mayan calendar, there was one day a year considered to be a day out of time.

Another pattern of nature is the hormonal biorhythm of women from all regions of the world. Most women have 13 menstrual cycles in a year, with the timing largely influenced by the moon. Many men also experience hormonal cycles. Both men and women can be considered an embodied timepiece, by marking the patterns of time through natural bodily rhythms, from the breath to the heartbeat. If we explore the number 13 further, we see that human anatomy contains 13 joints and the moon travels approximately 13 degrees in one day. Indeed, the number 13 is considered a universally mythical number associated with Earth-based spirituality from past cultures into present times.

Why Thirteen Global Survival Plants?

In *The Wild Wisdom of Weeds*, there are thirteen chosen plants to be the resilient ambassadors of the world. Why did I choose thirteen plants? I would say they chose me. I fell in love with wild plants when I was a child and continued to follow this passion of learning and using wild plants all through school and into college. My family made a priority of traveling so that my brother and I would maintain an open mind to the diversity of the world. We moved to New Zealand when I was thirteen, where I attended high school, and we traveled through additional countries on our return to the United States. As I continued traveling personally throughout my life, I noticed that similar wild plants were growing in all parts of the world I visited. It did not matter if I was in Japan, the Philippines, Norway, Sweden, Finland, Scotland, Russia, England, Fiji, Tahiti, Costa Rica, Mexico, Hawaii, Germany, Australia, or Alaska; they were all there. I started to think they were following me! It gave me a sense of confidence and feeling of belonging, as I would travel foreign lands knowing my food and medicine were all around me. After many years of noticing this pattern personally, I dove into more extensive research and discovered that these thirteen plants are indeed commonly and consistently found all over the world where humans live.

This discovery proved to be an exciting affirmation for me; it confirmed my personal belief that these plants belonged here on Earth! They were not deserving of the derogatory names often given to them such as “invasive,” “non-native,” “aliens,” “noxious,” and “aggressive invader species.” By sharing the awareness that all these plants grow everywhere on Earth with a beneficial purpose of regenerating disturbed lands, I hope to shift the perspective that views them as the bane of society—thereby justifying their eradication. They belong on this planet just as much as everyone else does and require the same attitude of tolerance that we are cultivating for all beings in our attempt toward world peace. The journey of peace begins by honoring our local plants as essential allies to our well-being. This is one important step in the greater picture of holistic living.

Common Qualities of the Thirteen Survival Plants

- They are found in abundance
- They are free to harvest
- They are readily available and accessible to most people of the Earth
- They have a history that has evolved with human civilizations
- They are edible with exceptional nutrient density
- They are medicinal with minimal preparation
- They have economic value in today’s market
- They are easily identifiable
- They are ecological succession plants
- They are drought tolerant
- They are cold tolerant
- They are altitude tolerant
- Their niche is human impacted
- They are considered noxious weeds or invasive plants
- They are commonly neglected or purposefully eradicated
- They are nature’s first permaculture plants
- They grow in compact and disturbed soils
- They are resilient in a variety of habitats from lush to barren
- They can be harvested and eaten throughout all four seasons

- They are often considered a nuisance to civilization
- They grow across the globe next to permanent human communities
- They can be eaten raw with no or minimal preparation
- There is little concern of overharvesting due to their abundant and hardy nature
- They have strong root systems that help break up compact soils
- Their composted leaves build soil structure seasonally
- They regenerate infertile grounds disturbed by human development
- They cultivate new ecosystems with enhanced fertility for other plant species
- They are heroes of the twenty-first century

The Regions of the Thirteen Plants

My friend and teacher, David LaChapelle, recommended that I include the world's thirteen main rivers flowing as primary arteries across the face of the globe as a component of this book. He was an author and a teacher and wrote several books including *Navigating the Tides of Change*, a book acknowledging some of the global changes occurring around us on a large scale.

As I began to research his suggestion, I found that the main planetary waterways demonstrated beautifully the broad scope and range of these plants across the globe. There are major civilizations situated along the principal rivers of the world, and by the same token, the majority of the wild plants focused on in this book can be found within and on the outskirts of each of these human communities along the banks of each of the rivers, as well as in every country that the rivers pass through.

Highlighting the main rivers of the world further connects humanity by reminding us that we are all part of a living being which is our collective Earth home, also known as Gaia, a term coined by the scientists James Lovelock and Lynn Margulis in the 1970s. The waters of one place all flow into the oceans of the planet and affect the rainfall in our atmosphere everywhere. Today as we are becoming increasingly interconnected as a global community from influences such as the Internet, by the availability of travel, and by literature and media, it is a good reminder to acknowledge that

we are all interconnected. All of our actions affect each other's homes and ultimately our collective quality of life. This realization acknowledges that there is truly a global audience that has the potential to share the wealth of these plants.

Sacred water—the source of life

The Earth's Principal Rivers and Their Tributaries

1. The Nile flows 4,132 miles (6,650 kilometers) through eleven countries: Tanzania, Uganda, Rwanda, Burundi, Democratic Republic of the Congo, Kenya, Ethiopia, Eritrea, South Sudan, Sudan, and Egypt. One of the largest cities along the Nile River is Cairo.
2. The Amazon River flows 4,000 miles (6,437 km) through Columbia, Peru, Brazil, Venezuela, Ecuador, and Bolivia. One of the largest

cities along the Amazon River is Manaus.

3. The Yangtze River flows 3,915 miles (6,300 km) through China. One of the largest cities along the Yangtze River is Shanghai.
4. The Ob-Irtysh River flows 3,459 miles (5,568 km) through Russia. One of the largest cities along the Ob River is Novosibirsk.
5. The Yellow River flows 3,395 miles (5,464 km) through China. One of the largest cities along the Yellow River is Lanzhou.
6. The Paraná River flows 3,032 miles (4,880 km) through Paraguay, Brazil, and Argentina. One of the largest cities along the Paraná River is Rosario.
7. The Mekong River flows 2,703 miles (4,350 km) through Thailand, Cambodia, Laos, China, Myanmar, and Vietnam. One of the largest cities along the Mekong River is Vientiane.
8. The Niger River flows 2,597 miles (4,180 km) though Nigeria, Mali, Niger, Benin, and Guinea. One of the largest cities along the Niger River is Bamako.
9. The Mississippi River flows 2,320 miles (3,734 km) through the United States. One of the largest cities along the Mississippi River is Jackson.
10. The Volga River flows 2,294 miles (3,692 km) through Russia. One of the largest cities in the Volga drainage basin is Moscow.
11. The Danube River flows 1,777 miles (2,860 km) through Austria, Romania, Bulgaria, Slovakia, Hungary, Ukraine, Croatia, Germany, Serbia, and Moldova. One of the largest cities along the Danube River is Budapest.
12. The Ganges River flows 1,569 miles (2,525 km) through India and Bangladesh. One of the largest cities in the Ganges drainage is Kolkata (Calcutta).
13. The Murray River flows 1,558 miles (2,508 km) through Australia. One of the largest cities along the Murray River is Albury.

Global Range of the Thirteen Plants

The thirteen wild survival plants can all be found growing around the main

civilized areas of all the world regions. This includes regions close to the equator and reaching out into further latitudes. However, due to the harshness of the climate near the North and South Poles, I want to focus with greater detail on specific regions where land is just beginning to become more habitable in its diversity of plant and animal species due to global warming trends.

World Regions

- Africa
- The Americas (North, Central, South, Caribbean, and Greenland)
- Antarctica
- Asia
- Europe
- Oceania (Australia, New Zealand, Polynesia)

The Arctic Circle, Scandinavia, and Antarctica

The Arctic Circle is a parallel latitude that circles the globe at approximately 66 degrees north of the equator. This region includes parts of Iceland, Finland, Alaska, Norway, Sweden, Greenland, and Russia.

Teaching in Norway

Recently I was invited to Norway to teach the value of wild plants. I jumped at the opportunity to explore more deeply the plants of the area and to meet my Norwegian family roots. During some free time, I ventured north into the area of Finland above the Arctic Circle. I traveled in late September when the temperatures were dropping and the light was beginning to diminish. During a visit to the town of Enontekiö, located at 68 degrees north of the equator, I found (and ate) almost all thirteen plants growing in the lawns and side streets of the town. While I was there I took pictures of eleven of the thirteen plants featured in this book growing in the yard of Hotel Hetan Majatalo, where I stayed. This special hotel was run by a Sami family who hosted me with great generosity and care. I loved my time there, and one night was even blessed to witness the amazing northern lights swirling in greens and purples above.

Keksi Majatalon poron nimi.
Paras nimi annetaan porolle
ja nimen keksijä palkitaan.
Make up the name for Majatalo's reindeer.
The best suggestion will be rewarded.

Sami reindeer with weed headdress

The Scandinavian countries have temperatures that are generally warmer than the typical climate in other places of the same latitude because of the Gulf Stream, also known as the North Atlantic Current. These waters bring warmer currents from the south, which can take over five hundred days to pass the coast of Norway. During this time, an incredible amount of heat is released, warming the country. This trend makes the northern Scandinavian countries more amenable for a wider diversity of plants to thrive. And although I did not see two of the thirteen plants in person (amaranth and mallow), with further research I found that, indeed, they both grow in all of the Scandinavian countries.

Iceland is also affected by the warming trends of the Gulf Stream and has

all thirteen plant species. Iceland is situated between 65 and 68 degrees north of the equator. Some of the specific plant species include chickweed (*Stellaria media*), northern dock (*Rumex longifolius*), knotweed (*Polygonum aviculare*), Iceland lambsquarter or orache (*Atriplex glabriuscula*), purslane (*Montia fontana*), plantain (*Plantago maritime*), and thistle (*Cirsium heterophyllum*). Many species of wild mustards, grasses, dandelions, and clovers also have found their niche in Iceland.

In southeast Greenland, plant data compared between the early 1900s and 2007 shows that eleven out of the thirteen plants are found growing currently. The plants include six dock species (including *Rumex longifolium*), five species of chickweed—including the introduced *Stellaria media*, several native dandelion species—including the introduced *Taraxacum officinale*, clover (*Trifolium pretense*), fifty-two species of wild mustards including *Brassica campestris*, purslane (*Montia fontana*), grass (*Poa annua*), thistle (*Cirsium arvense*), plantain (*Plantago major*), knotweed (*Polygonum aviculare*), mallow (*Malva neglecta*), and lambsquarter (*Chenopodium album*).

Purslane is considered native to both Greenland and Iceland. This simply means purslane found a way to the islands (perhaps by birds, sea currents, or ships) earlier than the other plants that are considered invasive. It is a human judgment of perspective as to which plants are accepted as being native and which plants are not. It seems to be an arbitrary decision of timing as to when to close the door on nature’s geographical distribution of species.

The Antarctic Circle has a similar parallel latitude that runs around the globe at approximately 66 degrees south of the equator. In Antarctica, the average midwinter temperature is rising faster than anywhere else on the planet. It has increased 6 degrees Celsius since the 1950s, which is five times higher than the global average. This trend is leading to rapid melting of the ice sheets that lay over the continent. This climatic change is making land more available for plants to find exposed dirt and become established. Yet even with the rapid warming, there is still only about 2 percent of land that is not covered by permanent snow and ice along its coastal edges.

Lichen species growing on the East Antarctic Peninsula • Photo courtesy of Rob Blair

The plant species found there today are primarily the mosses, fungi, lichens, and liverworts. There are only four flowering plant species that live on the mainland of Antarctica. Out of the four species, two are grasses that have been introduced (*Poa annua* and *Poa pratenses*) and the other two are considered natives, Antarctic hair grass (*Deschampsia antarctica*) and Antarctic pearlwort (*Colobanthus quitensis*).

However, in areas just north of the Antarctic Circle, we find a greater diversity of species. On the island of South Georgia, at latitude 54 degrees, we find over forty flowering plant species. Fifteen of those are considered alien species that have become well established near the former whaling stations. Many of the thirteen wild species now grow there—including plantain, mustard species, dock, grasses, dandelion, and chickweed.

The Flawed Concept of “Invasive”

The South Atlantic Invasive Species Strategy and Action Plan was created in 2010 by the governments of many of the islands off of Antarctica such as the Falkland Islands, South Sandwich Islands, and St. Helena. Their goal is to prevent, eradicate, and control “non-native” species growing on the islands. Their stated purpose is biosecurity, and yet I find it important to question the root assumption. Are only the species that were living there when humans

started to observe the area the native ones? Are all species that arrive after humans considered non-native and invasive? Do we cause more harm to the ecosystem by our controlling methods? Are humans a part of nature or separate from nature?

Today in Antarctica, there is strong effort to prevent “invasives” entering the continent via the hitchhiking seeds that tourists bring with them on their shoes and clothes. There is currently a strict policy to vacuum every visitor’s clothing, luggage, and shoes to prevent seeds from being brought to the land. With two out of the four flowering species present in Antarctica considered invader species, how can future biodiversity happen? How did any land or continent evolve and come to be populated by a rich variety of species? Do we really know what is best in the big picture?

It is probable that each new land evolved with just a few species existing and then—as conditions changed into warmer climates, more fertile grounds, and less ice—a greater diversity of species were able to take hold and thrive. Seeds were brought to every new land by animals, wind, water, birds, fur, and excrement. The plants come in stages based on their ability to survive and then make way for other species to better adapt. Each plant creates a new microclimate, which prepares the conditions needed for the next plant in the line of succession, leading to an ever-evolving kaleidoscope of change. The adaptable and resilient plant species that can handle harsh climates are important because they increase diversity of an area over the long run. The new plants found in Antarctica are similar, although the seeds are being introduced to the land on the cuffs and shoes of abundant visitors.

Humans are creating change on a large scale at an exceedingly rapid rate, and yet if we try to hold back nature by eradicating every new species that appears on a barren land, we block nature’s progression of adaptation. There is an accepted perspective that change is negative and therefore justifies momentous efforts to block diversity from becoming established for fear that it will alter the native habitat. It is important to remember that “native” habitat only represents a moment in time. All habitats evolve and are changing constantly. If the wild weeds are resilient enough to be able to handle the climate and take root, they play an important role in the evolutionary aspect of nature.

Perhaps the most important piece to recognize in our attempts to control nature is that our very efforts can actually create more harm than good. Are

we altering the delicate ecosystem even more by assaulting it with herbicides and pesticides in our attempts to eradicate the newcomers? Are we creating an even greater change that harms the microbiology and ecology of the area? If we continue exerting huge efforts in trying to stop the natural progression of evolving species, we may be creating more damage than by simply doing nothing.

The beauty in nature's progression of change is the path of least effort. It is nature unfolding in the miraculous evolution of life. As a human society, if we can allow and find value in the path of least resistance, we save energy and thereby gain wealth. When we try to stop it, control it, or dam it, we expend large amounts of money, resources, and time with often very little success. Witnessing the essence of nature reminds us that it is a force beyond our control. If we work with this powerful force, we can tap into a resource that is unlimited.

The secret of life in a Taoist perspective is to return to the "primitive chaos-order" of the Tao. Chaos threatens our sense of order and yet Taoism reminds us that the cosmos originally came from and continues to depend on chaos for the creation of anything. The wild weeds are examples of nature's creative edge. They lead the way of the new frontier that is constantly forming.

Early Succession Plants

Each one of the thirteen plants profiled in this book is considered an early succession plant. There are two types of succession plants, *primary* and *secondary*. The primary succession plants come into the scene when the land is devoid of life such as after a destructive fire, a glacier recedes, or a major volcanic eruption that covers the landscape with lava or ash. The primary succession plants are adapted to establish life in a barren landscape. Grass, purslane, and knotweed are examples of primary succession plants.

Secondary succession plants become established in places that already have existing communities of organisms but the land has been altered due to a disturbance. The major causes of disturbance are natural disasters and human impact. The climate changes we are experiencing today can be seen as a mix of both natural and human-facilitated causes. Human development is probably the number one cause of the introduction of secondary ecological

succession plants at this time in history. Succession plants are one of nature's brilliant ecological tactics to ensure the continuation of life. These plants begin the process of restoration of the disturbed land. It is the wild weed species that turn lifeless ground into topsoil and then keep it from eroding. Both types of succession plants help create an evolving ecological community that continually changes the mix of species over time into an increased diversity. The specific progression of the species depends on the size and scope of the disturbance to the landscape, in addition to the general conditions of the environment. In 2002 in southwestern Colorado, an extensive fire burned thousands of acres—resulting in a profusion of wild grasses, knotweed, and other similar species. Regardless of whether it is thistle, plantain, amaranth, or chickweed, the succession plants become a new valuable resource, which can be harvested, dried, ground, and utilized as food and medicine.

Early succession plants are nature's first line of action for recreating stabilized fertility in areas of disturbed ground. The succession species have evolved to find their niche in newly disturbed habitats when the vast majority of earlier plants that were previously growing can no longer survive given the altered conditions. As these newly succeeded species take hold, they change the micro-ecology of the environment by breaking up compacted soils, increasing the amount of water available to the upper layers of the water table, increasing the shade available to the soil and smaller plants, and changing the mineral composition of the soil by drawing up minerals with their root systems and redepositing them through the decomposition of their leaves. The restorative changes to the land encourage a range of additional diverse species to find their niche in this new and improved habitat. The wild weed species start the restoration process that will lead to building the climax plant community that eventually becomes native to an area. Each region has its own characteristic guild of pioneer plants that stabilize and regenerate the land after disturbances—such as construction, timber harvest, or natural disasters—have stripped the Earth of vegetation. For example, succession grasses prevent soil erosion and retain moisture due to their overlapping root structures, thick stands of thistles can be a precursor of future perennial berry bushes, and clovers increase the nitrogen content in the soil—allowing for higher-nitrogen-feeding plants to take root later, such as fruiting trees.

Why Eat Wild?

Wild food is free!
Wild food is tasty!
Wild food is medicinal.
Wild foods grow with nature as the gardener.
Wild food is adapted to the land, climate, elevation, and weather.
Wild foods connect us to our place on Earth.
Wild foods grow without planting, watering, or weeding from us.

Knowing how to eat wild foods helps us survive and even thrive. Notice that all wild animals on planet Earth eat local, wild, and living foods. They don't cook their food or package it. They eat their food fresh right where they live. When we eat wild foods like a wild animal does, we get the most nutrition out of the food. Eating wild taps into nature's wealth that is free for all of us! All we have to do is harvest what we need! Make sure to know exactly what you are eating and trust your senses.

Remember we are what we eat, so when we eat wild foods, we become a part of the land itself, and together we naturally take good care of the Earth. Nature offers wild food generously as long as we respect her simple guidelines.

As I have already pointed out, the majority of these thirteen plants can be found today thriving all across the world on every continent where human civilization exists year-round. This is primarily due to our tendencies for disturbing and greatly altering the landscape. Even in Antarctica, Iceland, and Greenland, where diversity is low compared to many other regions of the Earth because of the severe climate, many of these plants are found on the edges where the ice has melted. As the ice continues to melt, they will likely become more established in a relatively short time because of their ability to adapt to such a wide range of environments, such as cold climates and barren ground. Rather than seeing these plants as a threat that limits the biodiversity of an area, if we look at the larger scope and pattern of nature, it is rather nature's way of creating a greater biodiversity and abundance.

When we align with these plants as allies, the newly available resources enrich our lives.

Harvesting Guidelines

I recommend a few key guidelines when harvesting these wild plants. As a harvester, it is critical that we use our observation skills and listen to our intuition so that we can ensure our efforts are not only beneficial to ourselves, friends, and family, but also beneficial to the environment from which we are harvesting.

How to Harvest

Although most of these plants can often be found growing abundantly, it is still vital that we are mindful of sustaining their healthy plant communities and greater ecosystems. To contribute to their reproduction, we can sprinkle the seeds of the plants we are harvesting over the ground to ensure a future crop. When harvesting roots, it is a wise practice to leave a portion of the root in the ground so that the perennial varieties of the plants will regrow year after year. Plantain, dandelion, mallow, dock, and clover are examples of perennial plants that will regrow from their root systems. It is also important to observe how large the stand of plants is in a given area and only harvest a few of the roots to avoid stressing the plant community. If we harvest all of them, we may not find them the next year. Because these thirteen wild plants tend to benefit from disturbed ground, our harvesting practices—such as digging up the roots, walking around the area, and scuffing up the soil—can actually continue to prepare the soil for their reproduction; although in general, it is wise to keep our impact as minimal as possible. Keeping these guidelines in mind ensures that the area will continue to generate wealth for us and our community members for years to come.

Where to Harvest

It is key to observe what is happening in the environment where we are harvesting. Because these plants often grow in disturbed grounds, we have to be mindful of what kind of disturbance has happened in a given area. If the land was simply plowed, overgrazed, or disturbed by construction, the consequences are generally nontoxic. However, if the land was sprayed with

herbicides or heavily fertilized with chemical fertilizer, we need to be careful about using those plants because of their potential toxicity. You may be wondering how you'll be able to know the history of a place you're just passing through. Plants that have been sprayed by herbicides look sick, and have the tendency to curl or spiral downward unnaturally. Sometimes they become discolored by spray residues. If you are harvesting near commercial agricultural regions, it is important to be aware that the area could have been heavily fertilized. Some of the wild weeds can build up concentrations of nitrates, making the plants too potent to ingest in great quantity, which can potentially cause gastric upset. A simple rule of thumb is to eat them in very small quantities if there is reason to suspect high nitrate levels and then observe any reactions. The flavor of the plants can also impart information. If a plant tastes unusually acrid or foul, it could be the influence of herbicide or environmental toxins. Avoid this area and find a cleaner place to harvest.

However, if I personally choose to harvest a plant that appears to be fully healthy and thriving but is found near a potentially toxic site such as mine tailings, commercial agriculture fields, septic waste areas, or fracking projects, I have found that they can be edible in small quantities. I evaluate each situation case by case and rely on my intuition. I utilize all my senses to determine if I want to ingest a specific plant for food—and even then, I only sample small amounts and tune into any physical symptoms before ingesting more. The chlorophyll in green plants neutralizes toxins both for the Earth and our bodies and can be a source of protection. Chlorophyll is utilized commercially in products such as breath fresheners, kitty litter, personal-health supplements, and environmental cleaning products, which help purify the body or an area of pollutants.

The Basic Guidelines of Respect

1. Ask permission.
2. Harvest only what you need.
3. Say thank you.

These simple practices keep us in the frequency of appreciating and respecting the intelligent life of the plants, the environment, and the universal flow of abundance. It is important that we embrace the full

cycle of giving and receiving. These practices also ask us to go a little slower in our harvesting, which keeps us available for greater observation and communication.

When to Harvest

The energy of a plant follows a natural growth cycle, and the plant's growth stage indicates where the energy of the plant is most potent and valuable. The energy is deep in the root in early spring and then gradually rises as the plant leafs out in the summer and eventually moves to the flowers and seeds in the fall. Some plants, such as mallow, keep a constant leafing, flowering, and seeding pattern at the same time and in general can be harvested at almost any time during their growing season. By being aware of where each plant is in its development, you will benefit from the greatest value that the plant has to offer in each stage of its growth cycle.

Usually spring and early summer are the times to gather the green leaves for salad and juices. When there is a large stand of a particular green, it is a perfect time to harvest in quantity and dry the excess for storage. Some of the plants that make excellent winter powders are lambsquarter, amaranth, plantain, mallow, and dandelion. Harvest the leaves when they are still young but big and green before the plant develops into its flower stalk. Some leaves can become smaller and less palatable as the plants begin to mature into the flowering stage later into the summer and fall.

Summer harvest is usually the time for harvesting flowers. When a plant is flowering, the energy has moved up from the roots and leaves and concentrated in the attracting blooms. If you want the energy and benefit of flowers, harvest them when they are in full flowering stage before wilting. For example, summer is the perfect time to gather the flowers of clover for tea and to dry them for later use. Summer can also be a time for continual gathering of the leaves of dandelion, plantain, and chickweed and the whole of certain plants such as mallow and knotweed. The juicy stalks of thistles are prime in the summer before they go to flower.

The fall season is the time to gather the seeds. Harvest your seeds when they have matured fully. Sometimes the plant stalk will have turned brown and look like it is dead. The seeds, however, will be at their prime stage to gather. When they are ready, they typically fall out of their seed casings.

Gather the seeds of the dandelion and thistle throughout the summer and fall to store for making milk throughout the winter months. The seeds of all the thirteen plants are very valuable as a winter food for making cereals, crackers, and breads as well as for sprouting and growing microgreens during winter months when fresh greens are less available for harvest.

The winter season (or late fall and early spring) is an ideal time to harvest the roots of the plants that are dormant. Depending on the snow and frozen ground it may be necessary to harvest the roots in the late fall after the plant has died back or early spring before the plant starts to leaf out. The roots develop a greater sweetness and concentration of sugar due to the plant's dormancy and the cold winter conditions. Dandelion and mallow will concentrate sugars in their roots in far greater quantity than in the spring, summer, or fall—making them exceptionally sweet and highly nutritious. This is a valuable source of food when local fruits are limited and natural sugars are sought. Winter can also be a time of continual harvest of any seeds still left on the dead stalks. The seeds can be sprouted or grown into microgreens.

Weeds in the Garden

The wild weeds that find their way into every gardener's plot become a valuable resource when seen with the right perspective. It is easy to feel overwhelmed or even frustrated by these "intruders" to your sacred planting grounds. Another attitude to embrace is one of awe and appreciation for these wild resilient species. This perspective is easier to cultivate when we understand their value as food and as medicine in our daily lives. The wild species are packed with even more nutrition than the majority of seeds planted in the garden or on the farm. The cultivated vegetable crops will often not be ready for harvesting for weeks to months while the wild weeds are ready to be consumed throughout the planting season. I time my "weeding" when I want fresh purslane for my salad or lambsquarter for my lunch or dandelion for my morning green juice. I do not do it all at once, but stage my harvests with integrating the wild foods into my meals. This keeps fresh foods available at your fingertips each day of the growing season.

Preserving Wild Foods

In order to ensure the wild food will last through all four seasons, we must become wise to the ways of preserving. The main techniques I use include drying, fermenting, freezing, juicing, and proper storing. The key to surviving off the local harvest is timing when to gather the “fruits” of the plants and then how to store them.

Each of the wild weeds can be harvested for their greens at a specific stage of the growing season. These can then be dried and stored for a protein powder or used fresh or cultured into fermented recipes. Next in the season are the flowers that can be gathered and dried for tea and spice; later the fruits can be harvested and pickled or cultured for preservation. Later are the seeds, which when properly dried can be utilized for making cereals and breads throughout the winter months; and lastly the roots can be preserved through fermentation in pickles, krauts, or alcohol—and they can be dried for later use as tea or soups.

The preservation techniques are relatively simple and can be successfully achieved by being mindful of a few guidelines.

The Plant Taste Test

When you are just beginning to harvest plants, it is wise to take precautionary steps to avoid ingesting the wrong plant and experiencing negative reactions. The plant taste test offers a way to take small steps to ensure that the plant you want to harvest is not going to harm you. These guidelines ensure your body agrees with the wild plant.

1. Use your intuition
2. Go slow and take your time
3. Look closely; feel and smell the plant’s distinctive qualities
4. Positively identify species through a plant guidebook or personal guide
5. If you believe the plant is edible, use the taste test method of safe ingesting

Taste Test Method:

1. Place the plant on the tip of the tongue or lips and see if there is any reaction.

2. Break a small amount of the plant off and hold it in the mouth and wait for a response.
3. Chew a small amount of the plant in your mouth but do not swallow. Hold it in your mouth and notice if there is any reaction.
4. Swallow a small amount of the plant and wait for at least fifteen to twenty minutes and observe your body's response.
5. Eat a small portion of the plant and see how your body responds before chewing more.
6. If there are no ill effects, enjoy more of the wild plant in small increments.
7. Remember, wild plants are more potent than store bought and garden-grown foods.
8. Even if you know the correct identification of a plant, it is wise to go slow and always use a cautionary taste test due to the variable conditions of different harvesting environments.

Drying

The drying time and technique will depend on the climate (humid versus arid). In dry regions, open air drying is effective. I dry in shaded locations so the ultraviolet rays of the sun do not break down the integrity of the plants, especially when I am drying greens. Several effective methods include laying the plants on a screen, hanging them in bundles, or placing them loose in a wicker basket—being careful not to stack plants on top of each other. When open air drying roots, it is wise to chop the roots in small pieces to make sure they dry all the way through more easily. If the climate is more humid, I recommend utilizing a solar or electric dehydrator to ensure a quicker drying time and that the plants do not mold.

Freezing

Freezing is an effective method of preserving wild foods, although it is usually dependent on an additional source of energy to run the freezer. Greens and flowers can be frozen, although they tend to break down quickly once thawed. One option is to use the greens in making a pesto or sauce and then freezing them in an already processed form. Heartier parts of the plant are more conducive to freezing, such as the roots or stems. In general, be

careful about thawing and refreezing, as the cell walls of the plants can get damaged and lead to a quicker loss of integrity. The seeds are typically fine stored at room temperature, although they will last longer if frozen. Some seeds such as amaranth need to be frozen for a few weeks in order to be sprouted later.

Juicing

Juicing the greens, stems, and roots of the plants when they are at their prime is another way to preserve the excess. Once the plants have been juiced, pour the juice into ice cube trays, then remove once frozen and store in a plastic bag for future use.

Fermenting

Fermentation is a fantastic way to preserve the wild harvest. There are many cultured recipes listed in Part 2 of this book specifically related to each plant. Fermentation not only preserves food, but it also enhances the nutritional value in the form of increased enzymes and microorganisms.

Storing Tips

Basic guidelines for storing the wild foods are to keep them cool, dry, and dark. Using a cold cellar, a cooler part of the house, or a shed can be effective for fermented foods and any fresh foods such as roots or seeds. Store dried plant material in a sealed glass jar to prevent any moisture from creeping in. Use amber-colored jars when possible and avoid storing jars where they may be exposed to sunlight to protect the nutrient levels of the plants. Aim to use up dried greens within a year, and harvest fresh plants again for the next season.

The wild thirteen weeds offer a source of year-round sustenance if we take the time to harvest each stage of their production and utilize basic preservation techniques. All across the globe, we are each blessed with the abundant gifts of harvest that these wild thirteen plants provide in the form of food and medicine for ourselves and our communities year-round.

Join Me on This Journey!

The Wild Wisdom of Weeds paves the way for a new paradigm of aligning with the natural abundance of our world. It celebrates the concept of self-

reliance as a way of life. It is my hope to develop within the reader a deep sense of belonging, confidence, and peace for being human in this present day and age. I hope to rekindle the inspiration that we can coexist in harmony with our home here on planet Earth. This book is written as a practical guide for anyone living in this modern age who desires to live in optimal health and freedom. One of the goals of this book is to encourage our societies to embrace these wild plants as valuable resources. Another purpose is to remind us how to align with the natural pattern of evolution and capitalize on the available wealth that currently exists today in the nooks and crannies of our societies that are often overlooked and undervalued. By appreciating and utilizing these widely available plants, they will continue to give back in countless ways to the health of our bodies and integrity of our home on Earth. These wild species have the potential to not only help us survive but to even take the journey one step further, to assist our ability to thrive in our modern time.

Thirteen Intentions for this Book

1. To create intimate community with our humans and nonhuman relationships
2. To empower each of us to live out our soul passions
3. To enhance our connection to the all-loving source of the universe
4. To support joyful living embodied in primal optimal health
5. To instill deep trust in our ability to survive and thrive in harmony on the land
6. To cultivate beauty from simple, pure, and wholesome living—*pura vida*!
7. To cultivate gratitude, grace, and generosity toward our natural environment
8. To reawaken our noble wild indigenous roots
9. To manifest world peace inside and out through inspiring devotional life habits
10. To align with the Earth's rhythms and natural laws of giving and receiving
11. To promote quality of life for all of our relations

12. To nurture a sacred space for the germination of the wild wisdom of weeds
13. To direct money, time, and energy toward the regenerating health of planet Earth through (a) global awareness and appreciation of weeds, (b) sustainable living projects, (c) organic land stewardship practices, and (d) simple, beautiful Earth-based lifestyles

Give thanks

Chapter 1

My Wild and Weedy Past

My wild and weedy past began before I learned to walk. My parents were involved in scientific research in the mountains, where we lived in a tent in the woods. My mother would take me into the tent to put me to bed and stay with me until I was supposedly asleep. As she crept out, I almost always followed her. Finally she learned to leave me outside of the tent to explore the wild dirt and plants growing nearby until I put myself to bed. During this freedom of exploration, I learned to identify my first plant, yarrow, which we steeped in the evening for our family tea.

My Upbringing and Early Inspirations

I grew up in southwestern Colorado, where my family had a small wooden picture hanging in the bathroom painted with a yellow dandelion. Written near the dandelion was a quote from Ralph Waldo Emerson, originally taken from an 1827 journal entry of his, that read, “A weed is a plant whose virtues have not yet been discovered.” I give credit to my regular visits with this little wooden sign as having a large contribution to my future life’s path.

At eleven years old, I experienced a pivotal moment that continues to guide me in my love of plants. I was with my brother and cousins floating on pool mattresses on Haviland Lake, a high mountain lake twenty miles north of Durango, Colorado. They all paddled back to the picnic area to have lunch with our family, and I found myself being called to continue paddling alone to the far end of the lake. I ventured around the bend, out of site, until I reached the farthest bank of the shore. The plants on the shore seemed to be beckoning me to come over to them. I crawled off my mattress and walked barefoot through the mucky water filled with moss and lake weeds until I

reached this shore of the lake. I sat down in and among all the wild mountain plants and became filled with an intense and completely joyful energy that I had never experienced before in such potency. It was a feeling of total euphoria! The plants and the surrounding environment gave me a strong message in that moment, saying “You are home” and “You are going to live your life with us.” The essence of this feeling still speaks to me today in my core, reminding me that I am at home here on our wild Earth.

Ralph Waldo Emerson plaque • Photo courtesy of Kurt Blair

This message continues to guide me through my life's directions and decisions. In addition to inspiration from the plants themselves, I am very supported by both of my parents in following my soul's callings. Our one family rule growing up was "to be true to yourself." This allowed a lot of exploration room for me to discover and live out what brought me joy. My

father is a mountaineer who also loves skiing, biking, and getting out into the woods to play as often as possible. He opened the doors of the wild world to me at an early age. My mother's life is also a constant inspiration for me. She developed rheumatoid arthritis at the age of seventeen and went through twelve years of treatment from Western medical doctors, drugs, and surgeries. Her arthritis continued to worsen until she was inspired to try a juice fast. After only four days of juicing, her pain dissipated. This epiphany of realizing how simple health could be inspired her to pursue a master's degree in holistic nutrition. She stabilized her condition and eliminated her pain by shifting her diet to a high level of living foods, including sprouts and green juices. Through her example, our family integrated living foods as the foundation of our diet and embraced the daily tradition of two green juices into our routine, once before breakfast and another one before dinner. This not only kept my brother and I healthy throughout our childhood, it also opened my awareness for me to become the master of my own health. Combining the inspiration and support of both my parents has lead me to embrace my soul's passion of primal optimal health found from the wild places of the Earth.

When I finished high school, I decided to camp out by myself for a summer in the forest just outside of town with the goal of eating primarily wild edible foods. I found a place off the beaten path and made a little lean-to out of wood for my camp. My shelter worked well until the August monsoon rains began. After numerous nights of becoming drenched, I later chose to set up a tent. I wanted to remain invisible and not be found by anyone, so in addition to covering my camp with pine and oak boughs, I also buried all my belongings underground in a big hole each day so when I left camp there would be little trace of my presence. No one knew exactly where I was, but one time my father tried to find my camp. I gave him basic directions on where I was located, but even though he searched extensively, he was not able to find my camouflaged home in the woods.

The only foods that I brought to my camp were some raw sunflower seeds, buckwheat groats, and flax seeds that I soaked in water overnight for breakfast the next morning. Other than that I ate the foraged greens, roots, and berries I found in the woods. Each night I made a simple tea of three yarrow leaves and several strawberry leaves in a small pot of water. A few days each week, I worked in town for the city's parks and recreation

department for a kid’s day-camp program. My bicycle was my only mode of transportation from camp to town and back. When I returned to my camp, I always hid my bike across the creek. I would steady my balance and carefully carry my bike across a log over the water, stash it in the bushes, and walk up to my camp. Sometimes when I was in town working with the kids, they would not completely finish their lunches and I would ask, “Are you sure you do not want those last bites?” If they said no, I would feast on a few of their leftover crumbs. Other than the occasional scavenging, I ate primarily wild foods that summer. At one point, I had a break where I didn’t have to go in to work for two weeks, and I decided to stay up in the woods the whole time. It was a rich stage of learning and connecting with the land—but when I finally came to town, I remember feeling so excited just to talk to another human being.

During this summer my learning curve about wild plants was very steep. My parents lived in town, and sometimes when I found a plant that I could not recognize in my guidebooks, I would bring it to my mom. We would use muscle testing, our own version of kinesiology, to find out if it was healthy for my body. It always proved true. After our muscle testing showed it was positive for me, I would then find out from another source that confirmed it was edible. One time on my own, I ate a wild berry that I didn’t know. Soon afterward I looked it up in a book that I had with me and found it was poisonous. As soon as I began reading the symptoms, I developed every single one of them on the spot within moments. I experienced a headache, a stomachache, and a feeling of nausea. The symptoms only lasted a short time and then went away, and looking back I wonder if my reactions were all in my head and actually psychosomatic. Later I came to understand that this same berry, Twinberry (*Lonicera involucrate*) is also considered edible, depending on which source you read. Either way, I discovered that for my body, only one or two of the berries is my limit because they just don’t taste good. Twinberry is not a berry I would recommend making a pie with!

After my summer in the woods, I attended Colorado College in Colorado Springs. The college structures its classes on a block program, allowing students to take only one class at a time for a month. I was blessed to have a biology professor who supported me in taking several independent study classes. These independent sessions allowed me to spend the month of my course time in the woods studying the wild plants and at the end return to

campus to write my final paper for my grade. I finished my degree in biology by writing my senior project, *The Wild Edible and Medicinal Plants of the San Juan Mountains.*

During and after college, I further integrated my passions for wild plants by working for Outward Bound. After several years with Outward Bound, I returned to Durango and worked the next four years for Outdoor Pursuits at Fort Lewis College. This outdoor time with students allowed me to delve deeper into wild plants while sharing their benefits with others along the way. For my first years of working back in Durango, I lived in a tipi, which taught me about the complexities of living simply. During that time, I felt as if I was living in a developing country all by myself. I dealt with smoky woodstoves, sleeping with my water next to my body to keep it from freezing in the winter, mice as my roommates, and deep mud in getting back and forth to town. My tipi living aspirations shifted when the southwest experienced an exceptionally heavy snow year that warped my poles and molded my tipi canvas.

After visiting a wooden yurt on a backcountry ski trip, I was inspired to build a more sturdy and permanent structure for my home base. I purchased a sunny 2-acre piece of land and spent over the next three years building my home using recycled materials with lots of help from my community. On the day we raised the walls, twenty people came to offer a hand. The maple hardwood flooring in the house came from salvaging the Fort Lewis College's auditorium floor after the roof collapsed from that same big snowstorm that destroyed my tipi.

My home is a one-roomed octagon with a ponderosa pine tree in the middle and a spiral stairway going up to the loft. It is filled with so many plants that it feels like a tree house in the jungle. Soon after finishing building this sanctuary, I left for graduate school to gain a degree in holistic health education from John F. Kennedy University in Orinda, California. This time of formal training was ripe with integrated learning about the interconnectivity of mind/body/spirit. I lived on the edge of the Redwood Regional Park and foraged for wild foods daily. I fell in love with the abundance of wild miner's lettuce and chickweed not far outside my door. After completing my master's degree, I returned to my hometown, where I still felt deeply connected to the land and the people. Due to my continued passion for wild plants, wildlands, and health, I was inspired to start the

nonprofit organization Turtle Lake Refuge in 1998.

Local wildlife welcome sign

The History of Turtle Lake Refuge

Turtle Lake Refuge began as an effort to help preserve 60 acres of wetland adjacent to a lake close to my home, which is nicknamed Turtle Lake because of all the native Western painted turtles that live there. Some friends and I began serving locally grown, wild, and living food lunches twice a week with the intention of raising money and awareness to protect this land from a potential development project. With a yellow, three-wheel bicycle

cart as our transportation, we pedaled a four-course meal complete with all the dishes to a community building several blocks away, where we opened our makeshift café in the hallway. After a year of our traveling “café” serving $5 lunch plates, we didn’t quite raise the total amount of $500,000 needed to buy the land ourselves, but we were blessed to have a neighbor purchase the land and put 47 acres into a conservation easement. We offered to contribute what we had raised to pay for the stewardship fee of the easement, but the owner chose to finalize the conservation independently. Due to the help of collective visions, the outcome was a successful completion of our original goal.

Our purpose at Turtle Lake Refuge grew much greater than securing just one piece of land. It has ultimately expanded to include the protection of all wild places of the Earth, with the focus on education about the values wildlands have to human health and well-being. Turtle Lake Refuge’s mission is “to celebrate the connection between personal health and wild lands.” Throughout my time communing with the wild plants, this connection has become very clear to me. The more we take care of our personal bodies, the more we naturally take care of our planetary body. The two paths go hand in hand effortlessly in supporting quality of life on Earth. My personal intention and Turtle Lake Refuge’s collective mission continue to celebrate this primal connection of health and wild places.

Local wild and living lunch

Turtle Lake Refuge has evolved into a hub of inspiration for sustainable living practices. We have a location in town that functions as a year-round educational center and includes a two-story grow room for microgreens and sprouts, a commercial kitchen, and a wild foods café. Every Tuesday and Friday, we open our Local Wild Life Café and serve a locally grown, wild-harvested, and living foods lunch by donation to the community.

We have now been serving lunch for over fifteen years. On the other days of the week we create homemade, wild-harvested treats for the local stores and grow a variety of microgreens that we harvest from our grow room. We deliver the microgreens to the local public schools for the salad bar in their lunch program as well as to restaurants and local stores. We also work directly with teachers in the classrooms to incorporate the valuable training on growing microgreens as part of the public school education.

Some of Turtle Lake's Favorite Wild Local Treats

- Amaranth Flaxseed Crackers: dehydrated cracker with wild amaranth seeds
- Mallow Rye Breadsticks: dehydrated sprouted breadstick with mallow greens
- Phat Nettle Oaties: soft cookie made with dried nettle greens
- Wild Lambsquarter Onion Bread: dehydrated soft flatbread with lambsquarter greens
- Chokecherry Macaroons: dehydrated treat with chokecherries, dates, coconut, and apples
- Dandelion Ice Cream: creamy sorbet made with avocado, lemon, dandelions, and honey
- Mint Magic Balls: minty pumpkin seed date rolls with sesame seeds and wild greens
- Silent Paradise Balls: soft cookie made of wild greens, bee pollen, figs, and carob
- Dandelion Pesto: made with half dandelions and half other garden greens
- Thistle Lemonade: simply made with thistle greens, lemon, honey, and water

“Living Soil”: Teaching Teachers

Over time, I have witnessed a common theme that people are becoming increasingly hungry for the primal knowledge of how to live off the land, what to eat, and how to prepare it. I began teaching Alive and Wild food classes when Turtle Lake Refuge was founded in 1998. This series of classes often consisted of a group of us heading outside to learn about and gather the wild foods in season. We would return to the kitchen to collectively prepare a wild foods meal and feast in celebration of our local abundance. As I continued to teach these local wild and living food classes, I realized that there was a desire to go deeper.

This growing interest in primal skills was the motivation that evolved into an educational program called Living Soil, which is rooted in learning from nature’s wisdom. Our goal is to teach the teachers so that this vital

information can spread widely. We offer a six-month Local Wild Living program that focuses on wild edible foods, living food nutrition, holistic health, and permaculture design practices. The classes and field trips are a collective journey focused on deepening our relationship with the local abundance of the land and integrating wild foods and healthy living practices into daily life.

My Wild Weeds Passion and the Dandelion Debate

I have been a passionate advocate of the wild weed species that grow locally in my hometown for as long as I can remember. One of my personal missions has been to actively promote their benefits to my community in order to help shift the city and county's views and their efforts to eradicate them. Teaching their values and integrating them into recipes at Turtle Lake Refuge, our goal has been to raise the wild weed's level of value and respect. We have highlighted them in the foods available in stores and restaurants, and celebrated them at the farmers' markets each summer. Ultimately I hope to help shift their identity to one of appreciation as a source of wealth that can provide optimal primal health to humanity.

My deep passion for honoring the wild weeds intensified due to our local city and county's practices in weed control. Hundreds of gallons of herbicides were being sprayed onto the plants in town and on nearby wildlands with the intention of eradicating plant species considered weeds. Since I grew up loving all plants equally, I found it tragic to witness a once healthy plant that was contributing so much richness to our landscape become a twisted and dying being due to poisoning from herbicides. My passion for all plants inspired me to do what I could to change the discriminatory treatment of these noble weeds, who I have come to know as the true heroes of our time.

In addition to witnessing this "war on weeds" occurring on the sacred lands of my home and around the surrounding mountains and rivers, I also was tested by the fact that my closest neighbor was the herbicide contractor hired by the city to spray "weed and feed," a mixture of chemical fertilizers and herbicides throughout the city and county. Ironically, the large storage containers of the lawn chemicals are housed in tanks about 10 feet from my organic gardens. This situation provided me with plenty of motivation to

focus on changing my hometown and county's weed policies. Our obvious contradictory philosophies were an ongoing conversation in letters to the editor, public meetings, and newspaper articles. Our public and personal differences were even published in an article on the front page of the local newspaper in an article called "The Dandelion Debate."

Dandelion Brigade

To help reduce the town's use of herbicides, Turtle Lake Refuge has initiated several organic lawn care projects. Our first effort was the Dandelion Brigade. When the Dandelion Brigade was called to action by a homeowner, the Turtle's colorful crew dressed in yellow and green appeared at our client's lawn to dig their dandelions.

We would bring our bicycle blender to the lawn site to make dandelion lemonade for the owner and ourselves while we harvested them. (The dandelions were only used for juice if they were not sprayed with herbicides previously for over three years.) Our secret for creating tolerance was to share fresh, delicious dandelion juice with our customers. In addition, one person became the musical bard for a period of time by playing a guitar or a dandelion flute as an instrument while the rest of us worked. Then roles were switched so everyone got a chance to make the music and dig the dandelions. It became a very fun social way to make a small difference in caring for the Earth. Our merry crew frequently drew numerous kids to join the party. The little people were some of biggest helpers and such good reminders of why it is so important to be organic land stewards. In addition to supporting their immunity, we all benefit by having the pleasure to walk barefoot on healthy organic grass and breathing in the good smell of fresh, clean air.

Grassroots

Several years later with the initiation and help from a Fort Lewis College environmental ethics class, we started a more official organic lawn care service called Grassroots. Our motto was "Organic lawns for healthy kids and happy honeybees. We care for your lawn to our oceans." Grassroots provided locally made organic compost tea to fertilize the homeowners' lawns. By using compost tea as a fertilizer, the severe problem of residues

from chemical fertilizers running into the oceans and creating dead zones is avoided.

In 2008 through the volunteer efforts of the city mayor, several dedicated mothers, some local college students, Colorado City Parks and Recreation Department, and Turtle Lake Refuge, we established our town's first chemical-free park. On this 3-acre park we applied organic compost tea, organized weed-harvesting parties, and donated a bat box to be placed in the trees to encourage bats to feast on the mosquitoes.

Bee Happy Lawns and Gardens

Our current organic lawn care project now runs by the name Bee Happy Lawns and Gardens. One of our goals is to encourage homeowners and landlords to convert their lawns into edible gardens. However, if clients desire a grass lawn, we help them manage it organically to support the immune health and survival of insect pollinators such as the honeybee and butterfly. Another important goal is continual education about organic land stewardship practices and the beneficial nature of weeds. We support people in making the important step in moving away from chemicals and toward organic stewardship practices that increase abundance for all life.

As a beekeeper and a lover of life, I find it of critical importance that we make the necessary changes immediately to start creating an ecosystem that will sustain pollinator immune systems! We may not have control of all impacts, but shifting away from using herbicides and pesticides is one positive change that will make a huge difference. We have recently made a bumper sticker that says Bees Love Weeds.

Bees love weeds and honey

My Experience Fighting for Organic Parks

Turtle Lake Refuge continued to work with our city to help shift the park maintenance to organic practices. Through our persistent encouragement, the city of Durango established its second organically managed park in the north side of town. Although this was another great success, the city stopped with only two chemical-free parks. They said it was enough to give the residents a choice. Unfortunately, the majority of the parks are still treated chemically. And since children play in the park closest to home, in actuality they along with all other creatures are not truly being given a choice.

The precautionary principle, a concept that stands up in court in Canada, prevents a product that causes potential harm from being allowed for use until it is proven safe. In contrast, here in the United States, products are allowed to continue to be used until they are definitively proven toxic, even if there are extreme potential risks involved. Exposure cannot always be monitored. Children and pets do not read the little yellow signs that say Danger: Pesticides Applied. The bees do not get to choose their “safe” exposure levels. Unfortunately, the consequences of lawn care chemicals are hazardous and far-reaching.

Pesticides applied banner

After working with the city for over six years, we seemed to be at a standstill with only two chemical-free parks. To move past this roadblock, Turtle Lake Refuge—assisted by the direction of a skilled pro bono lawyer—scripted a city ordinance stating that all the parks and public lands in Durango be managed organically.

Around this time, a dear friend approached me and asked if her group, Thousand Cranes for Peace, could come and fold cranes at Turtle Lake Refuge to support our intention of organic land stewardship practices. Week after week the family of folded cranes grew until it reached a thousand cranes strong. After they were all strung together, we hung them in the stairs of our grow room between the two levels of growing microgreens. Every time I walk by them, I feel the power of their prayer to support quality of life for all beings.

Over the course of many months, we followed the exact protocol to move the ordinance into a legal status valid for giving the citizens of Durango a voice. We were required to gather five hundred signatures within a specific time in order for the ordinance to be placed on the ballot for a public vote in the November 2012 election. I give thanks to my dad for developing a successful strategy for gathering signatures at the farmers' market and our

whole team’s efforts. With the great support from our community, we were able to receive twice the number of signatures we needed in the given time.

However, because of the strict wording of the ordinance, there was considerable controversy and opposition. It was not very popular with the city staff and was considered extreme. The ordinance was written for all city-owned land, which included the city’s golf course, all parks and ball fields, and the open space areas. Some interpreted the ordinance to prohibit mosquito spray as well. This created fear of potential risk. During city council meetings focused on this issue, the room was packed both with people in support and in opposition; the meetings extended sometimes over four hours. When it was my turn to speak, I held in my mind the image of a thousand cranes in the room with us and surrounding the building all praying for organic land stewardship. They helped me stay strong when I felt the angry stares and voices of the opposition directed toward me.

One thousand cranes for organic land stewardship • Photo courtesy of Kurt Blair

As the election approached this issue was frequently debated and even ridiculed on the front page of the newspaper. Due to the political climate of the upcoming election, however, it was predicted that the ordinance would pass. Knowing this, the city repeatedly asked us to withdraw it. Only when they offered to cocreate a resolution that could satisfy both parties did we give it our consideration.

We still believed in the essence of the ordinance, but by negotiating the

terms we felt the process would be more inclusive and collaborative with a potentially more beneficial outcome. Less than a week before the ordinance was committed to going to ballot, we met with city staff and created an alternative resolution. The city agreed to implement an organically managed land plan starting with the parks in a phased approach, giving more room for a transition timeline. We let go of the golf course, but we successfully requested that organic mosquito control and organically managing the open space lands be integrated in a later stage of the program. On September 4, 2012, the city unanimously passed a resolution to adopt an organic managed land program and we dropped the original ordinance at the same time.

It was an exciting first step! Phase one of the organic land plan included converting over a third of the parks to organically managed practices the following spring. Future parks would be included in phase two as the program succeeded. The city hired Chip Osborn, the highly acclaimed national consultant with extensive experience in transitioning towns to organic methods of land stewardship, with the ultimate goal that included saving the city money and resources in the long run. His trainings focused on improving the healthy ecosystem of the soil to bring life, nutrients, and vitality back to the land.

Funds of $100,000 were needed to purchase the necessary equipment for the city to be able to begin the program. By owning their own equipment, they would no longer need to hire out the job to outside contractors. With the amazing help and devotion of my mom, we dove into fund-raising full time for several months. I wrote a letter to send out to a thousand people asking for their support. In mid-February, on the day I went to photocopy this letter, a honeybee landed on the letter and stayed there until I finally placed it in the garden. It felt clear that the bee was offering a blessing to our efforts for protecting its well-being. We received donations from hundreds of community members, including several large donations from individuals very committed to improving the quality of life for all. In less than two months, we had raised $51,000 to cover the expense of the sprayer truck. We presented the city with a check and they agreed to match our funds to purchase additional equipment, making the city self-sufficient in the long run to carry out the organic methods.

Although the journey of this citywide shift toward organic land management was consuming for a period of time, the outcome was

ultimately an exciting and liberating success! Durango is now set on a course of organic land stewardship that promotes greater quality of life for all beings, from the earthworm to the honeybee and to all the humans in between.

I am reminded that we each can be empowered to participate in what our local community is doing regarding managing the wild weeds. When we focus on our local region and help make positive change toward greater organic land stewardship practices, we can collectively make a huge difference to the global health of our oceans, the Earth's soil health, and quality of life for all beings on the planet. Each of us is so important and our efforts are collectively powerful when we all take a few little steps toward care for the Earth and its inhabitants.

My Global Travels Teaching about Weeds

I am periodically asked to visit different areas of the globe and teach about the edible and medicinal value of wild plants. The diverse places—Costa Rica, Norway, Scotland, Mexico, and New Zealand—are unique in their more established "native" plants, but they all have the similar wild weeds growing around the human communities. There is a powerful message that these weeds seem to be offering the human population at this time; they can help support our quality of life. They grow close to where people live, they grow in abundance, and they are exceptionally beneficial in terms of our survival from being both highly nutritious food sources and powerful medicines.

I feel honored to witness the realization that happens in people when the value of these underutilized plants becomes obvious. Regardless of what culture I am visiting, I commonly see a light that turns on inside someone when this connection is made. Together as an expanding global community, the wild weeds are uniting us through a common wisdom of instinctual survival. They are reminding us that we each can meet our basic human needs on a very locally regional and highly accessible level.

Chapter 2

Symbiotic Relationships

How Weeds Support Our Local Economic Security

There exists a dynamic cooperation between wild weeds and human beings. This unique exchange between us is happening constantly every day even when we are not aware of it; humans and weeds have evolved over time to form a symbiotic relationship that leads to the benefit of both species. This symbiotic relationship highlights the patterns of the mutually beneficial exchanges that weeds and humans have with each other—from environmental, to economic, to nutrition and health. As humans change the natural landscape with our daily activities, the weeds prosper, and through their prevalent growth nearby, human societies benefit in a multitude of ways. We both benefit from each other's survival.

The wild weeds offer accessibility to their nutritional and healing benefits with few or no economic barriers. The weeds give a plethora of vitamins and minerals that likely are superior to most supplements on the market, and are a source of vital nutrients that provide a secure food staple for building strength and integrity in the body. Harvest weeds in the growing season for a daily green juice to support the healing of minor to chronic symptoms of disease. Make a winter green powder for incorporating in meals in the off-season to improve the optimal functioning and efficiency of vital organs. Prepare the wild plants for self-care recipes to benefit personal hygiene—all the while saving on excessive packaging and resources.

By utilizing the wild weeds as part of life, we take the path of preventative medicine, a path of least effort. We ultimately can save money because we more easily maintain a state of health. These free wild resources

can redirect our life's patterns and habits so that we can avoid the services of the expensive and energy consumptive medical system. Instead of spending our days in hospitals, we can spend more time on local land gathering the wild plants.

Wild food at the farmers' market

When we align with the forces of nature rather than going against them, we succeed. There is a principle of cosmic organization that runs through everything in nature. When we tap into this resource instead of resisting it, we gain immeasurable strength and richness. Wild weeds are uncontrollable, just like nature itself is truly unstoppable in the long run. The forces of nature ultimately win. Weeds are similar in their inevitable victory here on planet Earth. We can choose to engage in a losing battle, or align with them and tap into a resource of wealth and abundance. Through this inspiration, we may deepen our participation in this win–win relationship and enrich our lives.

I would like to share several local examples of sustainable economic opportunities that are directly derived from the utilization of wild local foods and particularly weeds. It is empowering to know that individuals and local communities can enrich their economic status through conserving resources and gaining financial wealth as well as quality of life and well-being.

Gifting Economy

The gifting economy is the economy of nature. Trees produce fruit not because they expect to get paid in return, but because it is in their very nature to produce as many apples each year as possible. By creating a delicious and appealing product the apple tree has a greater chance of attracting animals to eat the fruit and increase its likelihood of spreading its seeds to new fertile grounds, furthering its genetic survival. Each species on Earth creates an offering to its environment that is a resource to another species while enhancing its own chances of survival.

These thirteen wild weeds offer their gifts freely and plentifully as part of their nature, and do not expect money or even a trade for their offerings. They simply grow green leaves, deep roots, and produce many seeds as part of their survival instinct. Our human activities moving around the Earth, compacting soil, building homes, and changing the landscape naturally help them thrive. The wild weeds are opportunists and have adapted to find habitats in disturbance. We create their niche and they offer us medicine, food, and Earth stewardship. When we partake in the abundance and utilize these generous offerings, we excel in our health and wealth while the Earth is supported in renewal and regeneration with the least effort on our part. This is the gem of the gifting economy. We each are provided with everything we need by engaging in mutually beneficial relationships.

The natural world economy is based on the currency of abundance. Nature demonstrates this for us every day by giving unconditionally through sunshine, Earth, rain, wind, water, and wild weeds. There is no obligation to pay back. Instead the “monetary” exchange is in a form of life-enhancing energy. Hafiz, a Sufi poet from the thirteenth century, writes of this unconditionally giving nature of the universe in his poem taken from *The Gift*, a book of Hafiz’s poetry translated by Daniel Ladinsky in 1999:

> The sun never says to the earth, you owe me.
> Look what happens to a love like that. It lights the whole sky.

Trends in nature predominantly focus on paying it forward. The resources build up and become available over time. The gifting economy in human societies works when we each focus on doing what we love. The energy of joy that comes from spending time focusing our natural talents becomes a

gift and act of service to others. When we engage in activities that have authentic meaning for us, we enter into the river of a gifting economy. If you love to garden, it becomes a joy to share your harvest with your community. The gifting of food to others creates an experience of gratitude from the receiver that naturally inspires additional tokens of appreciation in return.

Gifts from nature

Reciprocal Appropriation

The magic of a gift economy is through cultivating the mind-set of gratitude and generosity. These attitudes lead us into a path of alignment with the forces around us. When we are generous in our sharing and grateful in what we receive, we more easily trust the flow of the give-and-take exchange that is the natural dynamic of the universe. This exchange can be considered a circular dance that is seeded by giving and yet continues to spin by the inspiration of receiving. It is like the snake eating its tail in bliss. The ancient Greek symbol, Ouroboros, describes something constantly recreating itself with an eternal return. When we embrace this state of mind, we open to a path of wealth that supports our needs. We must start the journey by generously sharing what we love. When we do what is true to our hearts, others benefit and the giving and receiving exchange happens naturally out of reciprocal appropriation.

My mentor and friend, Dolores LaChapelle, taught me about reciprocal appropriation. In her last book, *Return to Mountain: Tai Chi between Heaven and Earth*, published in 2002, she states, “Reciprocal appropriation is the best phrase I have found for true human/nature relationship.” She refers to this relationship between humans and nature as a round dance where “ineffable joy” shapes the relationship of the landscape and the human being in direct connection to each other.

She further writes, “Today this ongoing reciprocal appropriation of human/nature is being rapidly destroyed and ruptured by world wide exploitation. Modern technology is domesticating the entire Earth and turning humans into mere ‘consumers’ and all of nature into ‘resources.’”

All beings have a sacred purpose here on Earth, and we engage in a noble contract when we experience life’s give and take as a dance of sacred interconnectedness. To participate fully requires us to humbly surrender to a larger dynamic exchange. When we surrender to each other we welcome another life force into our being to become us. In the same way, when we eat plants, they become integral to our being. The plant makes up our bones, skin, and cellular structure. The plant’s essence infuses with our mind/heart. The plant’s rooted intelligence from living outside in the weather; under the sun, moon, and stars; connected to the soil ecology; and tied intimately to the water of the land merges with our consciousness—creating an expansive sense of ourselves. By accepting that we need each other in respectful appreciation, the cycle of life sustains itself. This is the sacred act of reciprocal appropriation.

A poem written by Dolores LaChapelle, published in *Earth Prayers from around the World*, describes this exchange beautifully:

We give away our thanks to the earth
For giving us our homes
We give away our thanks to the trees
For giving fruits and nuts
We give away our thanks to the sun
For giving warmth and light
We give away our thanks to the wind
That brings rain to water the plants
All beings on earth

The trees the animals the wind and water give away
To one another so all is in balance
We give away our promise to being to learn
How to stay in balance with all of the earth

Some years ago I was teaching a semester class on sustainable practices at John F. Kennedy University in Orinda, California. During that time I followed my dreams for two months very carefully each night by remembering them, writing them down, and using watercolors to paint the images that came through. Each night before I went to bed, I would make a dream intention. This was sometimes a prayer, or a question, or an asking of support in a specific area. One night I asked my dreams about the wild weeds and how they felt about being harvested by me. That night I had a dream about the weeds. In my dream they told me that if we do not use them they will go away. I woke up understanding a deeper level of what reciprocal appropriation means. The wild weeds *want* to be appreciated and utilized in life-giving practices. They want to be harvested. When we do harvest them, they will keep growing in abundance for us. When we harvest them and utilize them with respect, we help them continue on their life cycle by spreading seeds, disturbing more ground, and stimulating their regenerative growth cycles. In contrast, if we disregard their importance, and use efforts to eradicate them, a valuable resource disappears. We are so interconnected in our mutual survival here on Earth. We need each other to survive. The give-and-take exchange that happens from each breath in our atmosphere to the giving of our lives to another species is a celebration of life renewal at its core. It is essential that we recognize this exchange and appreciate the transformation that continues to connect us to the web of life. By participating in the exchange, we embark on a path of service to all beings.

Food Security

I was involved as part of a collaboration of researching the food security in my region many years ago. Turtle Lake Refuge was included because of our niche of gleaning wild foods, which were taken into account in our county as an important source of food security. The wild foods included in the survey were both the wild foods gathered in the forested pristine areas like the wild berries and nuts as well as many of the wild weeds growing throughout our

county. In the process, I reviewed which wild crops we harvested each season. Many of the wild foods like acorns, pinenuts, chokecherries, and serviceberries did not produce every year; they are weather dependent species and are sensitive to cold and drought conditions. If our county received a late frost when they were still flowering, the plants did not produce any fruit that season. Sometimes there would be multiple years in between bumper crops of these foods and we would conserve the few remaining stored stashes of these special foods with the hope they would do well the next year. The wild weeds, on the other hand, were available for harvest in abundance every single year. They provided our community a consistent crop of food and medicine each season because of their ability to withstand drought and unpredictable weather conditions. The wild weed crops create a net of security for local communities when the other sources of food are minimal or scarce.

A Sample List of Some Seasonal Goodies in Our Wild CSA Program

- Local and wild mixed salad greens
- Seasonal fruit, seasonal vegetables
- Wild Teas: nettles, clover, mullein, thistle root, lemon balm
- Tomatoes, wild berries
- Fresh Herbs: rosemary, oregano, dill, sage, mint, thyme, basil, catnip
- Wild Grains: amaranth seeds, quinoa, curly dock, buckwheat
- Cattail flour, wild green powder, acorns
- Apple juice, apple cider vinegar, kombucha
- Green chips, honey, candles
- Yucca shampoo, horsetail toothpaste, mallow lotion
- Marsh elder stems, thistle stalks, and more . . .

The Wild Food Community Supported Agriculture (CSA)

In the summer of 2012, I was part of a team teaching a permaculture design course. The Turtle Lake Community Farm was one of the focus projects for

the final presentation of a group of students. The group assignment was to use the principles of permaculture to design the structure, layout, and production of the farm to increase efficiency and abundance. One of the ideas that came from that project was to start a wild food CSA program. Later that season, we put this great idea into practice.

CSA is a concept that helps offset the risk of the farm by having customers pay upfront for a share in the farm each season. After investing, every participant receives a box of farm-grown produce each week for the duration of the harvest. The farmer benefits by having income early to buy materials, hire help, and sustain the operations with less risk. It assures a customer base will receive all the crops the farmer grows, and the customer benefits by receiving a consistent supply of food each week. The farmer fills the box with whichever crops are most available to harvest at any given time. The customer doesn't choose what they want; they get what is in season at the farm. Sometimes there may be only a few of one item and a lot of another but it creates security for both sides of the exchange. With a sustainable business model, the farmer will have a better chance to continue to farm and produce high-quality local food for the residents in the region. The concept benefits everyone in the long run.

The wild CSA program is a worthwhile concept because it acknowledges that *every* plant growing on the farm has important value. By having an opportunity to highlight these unusual varieties of food and share them with the community, it completes a circle of resources on the farm. The wild plants growing before or alongside the cultivated ones are harvested just as any other plant. Rather than dispose of the weeds as a problem, the wild CSA program celebrates the weeds as the guest of honor and as a valuable commodity. Not only does this make sense economically, but it works toward the goal of seeing the farm as a whole organism.

Our wild CSA program originated with three main purposes: (1) to share the full diversity of what we have growing on the farm, (2) to educate our community about the values of the wild foods of our region, and (3) to empower each of us with the confidence and trust that we are surrounded by abundant local resources. Bringing another source of income into the farm supported us to hire people to help with the harvest and processing of all the wild foods. This component was an added blessing for the educational opportunities it provided many people who worked and volunteered with us,

who benefited by deepening their knowledge about the wild foods.

We are entering our third year of offering our wild CSA program and it continues to be a service to both the farm and our community. Our members receive a newsletter each time they pick up their wild bag of goodies to help them identify and utilize any unfamiliar foods. This year we plan on offering wild food preparation classes to wild CSA program members so that they will have the chance to participate in hands-on demonstrations of how to prepare these new foods and become more familiar with their benefits. We will also host community potlucks where we each share our recipes and experiences with the wild foods while deepening in our collective knowledge.

Sorting wild plants for wild CSA program

Human Health through Wild Mineral Supplements

Each spring for many years Turtle Lake Refuge has been involved with an annual food retreat hosted by Growing Partners, a collective of people and organizations that care about the quality and security of food in our region. During one retreat, I gave a talk titled, “Save $100 a Month and Gain a Thousandfold in Vitality with Wild Foods.” I focused my talk around these thirteen wild weeds and their extensive value as supplements. There is a huge savings on money spent because the wild supplements are free and available to anyone who is interested. The minerals these wild supplements offer to the body are made by nature’s brilliance in a perfected form. The wild plants are whole foods and are not manipulated by heat, pressure, and other chemicals or formed into an isolated and concentrated product. The concentrations of vitamins and minerals found in the wild plants are in the form of living wholeness making them far superior in supporting our nutritional needs. The main requirements of benefiting from them are to identify the correct plants, harvest them thoughtfully, and ingest them.

The total sales for supplement pills in the United States in 2011 were estimated to be around $30 billion. Close to half of all Americans take supplement pills, although an overall multivitamin is the most common. Multivitamin pills can cost from $7 to $40 a bottle and often contain the following ingredients: calcium carbonate, ascorbic acid, cellulose gel, magnesium oxide, ferrous fumarate, corn starch, dl-alpha tocopheryl acetate, niacinamide, zinc oxide, maltodextrin, croscarmellose sodium, hydroxypropyl methylcellulose, manganese sulfate, d-calcium pantothenate, magnesium stearate, silicon dioxide, cupric sulfate, pyridoxine hydrochloride, thiamin mononitrate, riboflavin, beta-carotene, polyethylene glycol, chromium chloride, vitamin A acetate, folic acid, potassium iodide, sodium molybdate, sodium selenate, phylloquinone, vitamin D3 (cholecalciferol), biotin, and cyanocobalamin.

I find it important to question the original sources of each of these ingredients and what kinds of processing they had to go through to become isolated and then recombined to form the pill. Extensive resources are required to pull out, dissect, and isolate vitamins. Additional energy is used to refine, reassemble, package, label, transport, and store it until purchase. It goes without saying that a great deal of waste and pollution goes into this process. It is also common that many laboratory animals are tested and mistreated in the study of what each pill does to the body. Typically when we

ingest supplements, our body requires a significant amount of energy and water in addition to our own nutrients to break down and utilize the pills, and commonly much of it is not absorbed and excreted in the urine.

We have to keep in mind that when many parts of something are isolated and put back together through human technology, the “wholeness” of life is not recreated. In fact, the sum of the parts is often less than the whole. The vitamins and minerals from whole food sources have evolved over time. They are charged with life and suspended in water molecules, making them more compatible for digestion with less energy required of our body.

The thirteen wild weeds covered in this book offer the optimal mineral supplements for our body’s health because of their ability to draw minerals from the ground with their deep taproots. The wild roots pull the minerals into their leaves and when we eat the leaves, we benefit from all the wild minerals present in their optimal state. When we harvest our wild supplements, we are participating in the gifting economy of nature.

The Importance of Flavor: There Is a Difference!

Have you ever had the opportunity to pick your own fresh wild strawberry from the mountains and discover it full and bursting with flavors even though it may be tiny in size? Or have you ever sampled a commercially grown strawberry that may be large and look attractive, but the flavor is bland? Often commercially grown foods are not only void of vivid flavors, but tend to lack integrity in their texture. Also, commercial agriculture practices can deplete the topsoil fertility and the microbial life within the soil due to unsustainable farming practices such as planting monoculture crops, herbicide use, and excessive plowing. A peach locally picked directly off a tree is firm and juicy, while a peach raised on a farm where it was fed chemical fertilizers and sprayed with pesticides will commonly be mushy or mealy inside and tends to rot quicker from the inside out. This in part can be due to harvesting the fruit when it is not ripe and the effects of using ethylene gas for forced ripening. A commercial fertilizer primarily contains three soil minerals—nitrogen, potassium, and phosphorus—but our bodies need a rainbow of trace minerals.

Similarly commercially grown greens bought in a store can be depleted of their diversity of trace minerals due to the agribusiness requirements for

efficiency. The seeds are generally annuals and may have been engineered or manipulated in some way to grow bigger or faster. The wild greens, on the other hand, have the essence of integrity throughout their entire being, from the root to the leaves and seeds. Their genetic strain has evolved with nature and has not been manipulated by human intervention. They find their niche to grow, even if the soil is not ideal. They have mastered being able to thrive in wild, unpredictable conditions while still growing optimally. Many of the wild weeds are perennial and grow in concert with the surrounding ecosystem.

We can empower ourselves by avoiding the whole drama of industrialized factories and instead reach down and pick a fresh dandelion green! We then are participating in the miracle of life's cycle of abundance effortlessly! Health is our given right, but we have to choose it very specifically and consciously in these modern times. It is easy to be swayed by the advertising campaigns that are tied into the economic engine of our capitalistic society. I prefer whole wild foods for my medicine because the nutrients are still singing the song of life and vitality rooted in the local land.

Below is a quick guide to common supplements and which wild plants offer specific nutrients. All thirteen of the wild weeds focused on in this book are actually exceptionally rich in each one of these minerals and vitamins; however, I have paired up the plants that exceed the rest in levels of specific common supplemental nutrients. By knowing what plants are growing around you along with their nutritional values, you can save money and resources by having your friends and family use them daily. Using the fresh wild greens during their growing season is ideal whenever possible, but having a source of the wild plants already harvested and dried is especially valuable in the winter months.

When comparing these plants to a sample generic-brand daily multivitamin pill, we often receive more vitamins from simply eating one cup of the fresh greens. When we change up the plants we use throughout the season in preparing our juices or adding to our salads, we benefit from a variety of nutrients found in the diversity of wild weeds.

The real worth lies in the life force of the plant. The knowledge, wisdom, intelligence, and vitality of these plants cannot be easily measured. They are an intimate expression of the land, the soil minerals, the micro-ecology, the sun's rays, and the climate in the neighborhood where you live. They

embody the integrity of wild nature even while in the confines of civilization. Because we are what we eat, when we ingest this primal essence of life, we experience a deeper sense of wholeness, confidence, and self-reliance.

Wild Weeds Supplement Chart

- Vitamin C: chickweed, dandelion, mallow, lambsquarter, amaranth, purslane, dock
- Vitamin E: knotweed, purslane, plantain, dandelion, clover, dock, grass
- Iron: dock, amaranth, lambsquarter, dandelion, mustard, clover, mallow
- Calcium: dandelion, clover, lambsquarter, amaranth, purslane, grass, plantain
- Magnesium: grass, lambsquarter, mallow, knotweed, mustard, dandelion
- Manganese: grass, purslane, dock, dandelion, dock, lambsquarter, amaranth
- Potassium: thistle, clover, lambsquarter, amaranth, dandelion, mustard, plantain, grass
- Antidepressant: mustard, purslane, thistle, chickweed, mallow, knotweed
- Anti-inflammatory: grass, amaranth, chickweed, mallow, purslane, plantain
- Omega-3 fatty acids: purslane, mallow, plantain, knotweed, chickweed
- Digestive: chickweed, mallow, purslane, mustard, dandelion, plantain
- PMS, Menopause: clover, purslane, chickweed, plantain, dandelion, mallow
- Protein: amaranth, lambsquarter, dandelion, dock, grass, plantain, mallow

Personal Care and Beauty Products

The wild weeds can also help us become more beautiful, externally and from the inside out. With the wild weeds close to our homes, we can create our own self-care products from lotion and shampoo to toothpaste. By using

wild weeds externally for beauty care and adding them into our diet on a regular basis, we may find tooth sensitivities disappearing, cavities being repaired, gums returning to a healthy tone, a healthy tightness and clarity returning to our skin, and once white or grey hair turning back into its original color at youth. An additional bonus from using the local plants around us for our personal care products is that we save money, conserve vast amounts of resources invested in manufacturing the products and containers, and connect with a source of wild beauty found effortlessly in nature.

Our physical beauty is supported by the integrity of minerals within our bodies. Our hair, skin, and teeth can heal and regenerate. They do this all the time daily. Mineral exchanges are constantly happening depending on what we eat. When we ingest mineral-rich foods, the minerals get redeposited in our bones and teeth and hair, strengthening the integrity of these areas of the body. When we eat foods that are deficient in nutrients, the needed minerals are extracted from our bones, teeth, and hair to assist with digestion and elimination of the depleted “food.” The wild weeds and seaweeds are two of the most mineral-dense foods that we can add to our diet to make a major change toward improving the strength of our bones and teeth. I recommend eating both sources on a daily basis to maintain optimal health.

Ann Wigmore, an author and health advocate originally from Lithuania, is an example of someone returning to her prime through using wild weeds and seaweed consistently. Ann developed healing and educational retreats in many places—including Puerto Rico and several locations around the United States—and worked with thousands of people, successfully helping them overcome serious health issues. Ann created a living foods healing program and started living it personally each day as she was teaching and caring for others in her healing retreats. My mom spent time with Ann in one of her retreats and benefited from the healing program and her inspiration. Ann’s main foods were the wild weeds, seaweeds, avocado, apples, sprouts, and the microgreens that she grew. Her hair had become grey in her fifties prior to her commitment to health, but in her late sixties her hair turned back to its natural brown color and stayed that way until she died in her eighties. She was still healthy and active at the end of her life, but departed her life when the building of her retreat center caught on fire.

Wild Weeds for Self-Care

Below is a list of the wild weeds and how they can support beauty and hygiene.

- Lotion: purslane, mallow, chickweed
- Shampoo hair rinses: purslane, plantain, mallow, grass, lambsquarter, knotweed
- Bathwater: mallow, purslane, grass, plantain, dock, chickweed
- Face mask: purslane, mallow, grass, plantain, dock, chickweed, knotweed
- Toothbrush: mallow
- Mouthwash: grass, mallow, purslane, plantain, knotweed, dock
- Tooth powders: knotweed, plantain, mallow, grass, dock

Self-Care Recipes

Utilizing wild plants for self-care can be easily integrated into a daily practice. It can be as simple as going outside each morning and chewing on a few wild green leaves or a more sophisticated process of making recipes. Although not completely necessary, I commonly use a few basic tools such as a blender and a metal kitchen strainer. This allows me to utilize the juice and the pulp for different applications.

Daily Green Juice and Morning Face Mask

2 cups greens: choose from mallow (aboveground parts), purslane (aboveground parts), knotweed (aboveground parts), plantain (greens), grass (greens), dock (greens), chickweed (aboveground parts)
3 cups water

Making a facial is easy and a natural added benefit after making your morning green juice. Blend the chopped whole plant with the water. Strain out the juice and drink the healing green liquid fresh to alkalinize, rehydrate, and mineralize the body for the day's activities. Apply the pulp as a green mask on the face and anywhere else on the body that needs a gentle and drawing demulcent action. It helps reduce inflammation, heal skin irritations,

and draws out toxins while truly beautifying your face with a luscious radiant glow.

Wild Bath

Blend the whole plant of any of the wild thirteen greens with water and strain the juice into the bathtub. Our skin is one of our biggest organs and benefits from the healing bathwater. While soaking in the nourishing wild water, if desired use the pulp as a body/facial mask and to exfoliate the skin. Lay the pulp on the face to reduce blemishes and draw out toxins from the skin. The green juice added to bathwater softens hard water and is renowned for creating smooth and healthy skin.

Healing Mallow Purslane Lotion

2 cups of mallow water
½ cup coconut oil
2 cups purslane
Essential oils as desired for aromatherapy
1 avocado (optional)

Make your mallow water by chopping the whole mallow plant in small pieces and cover with water. Allow the mixture to steep for one to eight hours before straining out the pulp. (Do not discard the pulp. It can be used multiple times by refilling with water and storing in the refrigerator.) Place the mallow liquid in the blender and mix with coconut oil, purslane, and essential oils. Blend until creamy. If you desire a thicker lotion, add one avocado to the mixture and reblend until thicker. Pour into containers and store in the refrigerator. It is best to keep it cool between uses to extend its life. Use it generously as it only keeps for a week to ten days. (Note: Lotion containing avocado has a slight texture that rubs off after the lotion dries on your skin. It is easy to rub off and the healthy oils in the avocado make it worth it!) An alternative way to benefit from the mallow when you prefer not to wait for it to soak is to blend the whole plant with water and strain out the pulp to create the mucilaginous healing base for your lotion.

Mallow is an ideal ingredient for self-care because it rehydrates, reduces inflammation, and supports integrity of the skin. It regenerates skin tissue, supports circulation of the skin cells, and improves healing of wounds. It

also protects against skin irritation from solar radiation while healing sun spots, darker areas of the skin due to prolonged exposure to ultra violet rays (UV). Purslane also offers itself as a powerful soothing, healing, and moisturizing ingredient when used fresh. Coconut and avocado are good sources of natural oils for the skin to rehydrate and soften. This homemade mallow lotion feels so nourishing while hydrating and healing my skin. It is good to remember that whatever we place on our skin, we are ingesting. This lotion is made from ingredients that are good enough to eat!

Mallow pulp for bath water

Wild Shampoo

2 cups mallow water
1 cup lambsquarter root, chopped, or 1 cup chickweed

1 cup fresh purslane
A few drops of your favorite essential oil

Make the mallow water as if making lotion; it makes a wonderful base for making shampoo. Place the mallow water in the blender. Add the lambsquarter root and purslane and blend until plant material is ground well and the mixture becomes frothy. Strain out the pulp. Add the essential oil to the strained mixture and blend lightly. The mixture should now be slimy and sudsy. Your shampoo is ready to use, and will keep in the refrigerator for about two weeks.

Alternative shampoo bases include soaked flaxseeds or buckwheat groats water. Soak flaxseeds or raw hulled buckwheat groats for eight hours and strain out the seeds and use the slimy water as the base of the shampoo. Yucca and chickweed leaves also make a good soapy texture for cleaning the body. Harvest one or two pointy yucca leaves and chop them into pieces. Blend with water and strain out the fiber for a sudsy liquid.

Mallow supports the scalp's health by maintaining hydration of the skin and preventing dry flakes or dandruff. Lambsquarter root is a natural source of saponins, which act as the foaming agent in shampoo and help clean the scalp and hair. Purslane is a soothing plant that moisturizes dry skin and regenerates hair growth. Placing wild plants on your head invigorates your scalp, and your brain will truly feel refreshed after your shower! The brilliance of the wild plant intelligence will enter into you through your head and permeate your thoughts all day long.

Mallow Toothbrush

The woody part of the mallow root and upper woody stems can be made into a toothbrush. It feels good to brush my teeth with a natural fiber from local land. The mallow root contains compounds that are good for oral, gum, and tooth health. Mallow is also alkalinizing and is beneficial for gently drawing toxins out of the gums.

To make a toothbrush, use as large a root as you can find. On the fat end, unravel the fibers of the root until they are about ½ inch long. Let the fibers dry out until they are firm. Use the long dried root as the handle and the unraveled fibers as the brush. If you only have access to smaller roots, gather about five mallow roots with a similar length of 8–10 inches. Unravel the

ends of the larger side (the part closer to the surface of the soil). Use a knife to get started and then use your fingers to unravel the ends, like untwisting a rope. Unravel about ½ inch of root from the mallow. Tie the skinny end of the roots around a sturdy twig and use the other end to brush your teeth.

Wild Green Mouthwash

Mallow: Use either mallow water or mallow juice from aboveground parts

Knotweed: Use aboveground parts

Plantain: Use leaves

Purslane: Use aboveground parts

Grass: Use the blades of grass

Dock: Use the fresh leaves or steep the root in hot water and make a gargling tea

Wild mouthwash is made by blending the leaves (or the whole plant) with a small amount of water and straining it to make a juice. It is best used fresh and remade each time you want to wash your mouth with it, although it will also store well for a day or two if kept in a glass jar with a tight lid in the refrigerator. I recommend using the juice for rinsing and gargling (and spitting out), and drinking the remainder of unused juice when as fresh as possible to receive the benefits both externally and internally. Use fresh wild green juice as a mouthwash both morning and night to heal receding gums, remove bad breath, and draw out toxins. Wild mouthwash is very alkalizing and strengthening for the gums and teeth.

Mallow toothbrush

Tooth Powder

1 part green powder
1 part clay (bentonite or another clean source)
½ part kelp seaweed (fine)
Essential oil of mint (optional)

Knotweed, plantain, mallow, grass, and dock all can be dried and ground very fine in a mortar and pestle, coffee grinder, or blender to be used as tooth powder. If you have a source of clean horsetail (*Equisetum spp*.), add 1 part horsetail (also dried and ground fine) for the beneficial silica that helps rebuild the enamel of the teeth. When I spent time in Alaska, I gathered the glacial silt near the Copper River to use in my tooth powders as a replacement for the clay. Once ground fine, add the dry powders together and stir in a few drops of mint oil until it is all well mixed. Store the powder dry in a closed container and sprinkle it on your toothbrush to use.

Local Weed Fermentations

Fermentation is one of the oldest forms of food technology for preservation,

and almost every indigenous culture has its unique recipes of fermented foods and beverages that have been passed down through time. Fermented or cultured foods have been an intrinsic part of the diet for most ethnic tribes. Cultured recipes help preserve food; enrich nutrition; and create new aromas, flavors, and textures via the life cycles of a diverse microbial population. Fermented foods are unique to different parts of the world and are intimately intertwined with the traditions and culture of a place and people.

Fermentation nourishes the body with an abundance of microscopic living organisms that increase the enzymatic activity of food. The microorganisms help predigest the food by breaking the complex proteins, starches, and fats into simple compounds which can then be assimilated into the body with a minimum of energy. The microorganisms also help to break down toxins that may be found in some foods, making the food more nutritious. Fermenting can remove nitrates, prussic acid, oxalic acid, nitrosamines, glucosides, and cyanide. The microorganisms found within cultured foods contribute toward a healthy flora in the intestines for optimal digestion, elimination, and overall immune system health.

When we ferment foods locally, we benefit from the microbial wild cultures that coexist in our environment with us and have adapted to our particular geography and climate. These local strains of microorganisms increase our ability to thrive in our unique regional ecosystem. Sandor Katz, in his 2003 book *Wild Fermentation*, speaks eloquently of this advantage:

> By eating a variety of live fermented foods, you promote diversity among microbial cultures in your body. By fermenting food and drinks with the wild microorganisms present in your home and environment, you become more interconnected with the life forces of the world around you. Your environment becomes you, as you invite the microbial populations you share the Earth with to enter your diet and your intestinal ecology. Wild fermentation is a way of incorporating the wild into your body, becoming one with the natural world. Wild foods, microbial cultures included, possess great unmediated life force, which can help us adapt to shifting conditions and lower our susceptibility to disease. The microorganisms are everywhere, and the techniques for fermenting them are simple and flexible.

All of the thirteen wild weeds covered in this book can be used in fermented recipes. Cultured foods and drinks can be made from a variety of parts of the wild weeds—including the seeds, flowers, greens, stems, and roots—depending on what you want to create. Many tried-and-true cultured recipes are included in the individual plant chapters in Part 2 of this book. Above is a brief sampling of examples for sparking your imagination. Fermentation is a creative exploration with endless possibilities; many still have yet to be discovered.

Types of Fermentation Incorporating Wild Weeds

- Kimchi: wild weed roots, greens, leaves, stems, and flowers
- Kombucha: with wild ingredients for added flavor and nutrition
- Pickles: wild roots, leaves, stems, fruits, and flowers
- Rejuvalac (fermented enzymatic beverage): from the sprouted seeds of wild plants
- Root tonics: cultured roots of wild weeds
- Sauerkraut: wild weed roots, greens, leaves, stems, and flowers
- Seed cheese: fermenting wild seeds mixed with sunflower seeds and almonds
- Sourdough bread: using wild weed seeds for the sourdough starter and flour
- Wine and beer: using wild flowers

Wild Green Powder

The benefits of locally made wild green powders are extensive. Harvesting the wild greens when they are at their optimal stage is key, and since each plant has a slightly different prime season, it’s important to get to know their individual growing habits. The goal for making green powders is to harvest the leaves of the plants when they are still at their peak of vitality, ideally before they set to flower. Dry the greens in an airy, shady place outside to protect them from direct sunlight because the UV rays can break down some of the nutrients. Once dry, grind them fine with a blender or coffee grinder

and add them to a main jar containing all the dried greens you have harvested and already prepared from other plants. The mixture continually evolves through the summer season. I tend to be an opportunist when it comes to harvesting my greens for the green powder, as I never know when I will find a lovely stash of bounty. I try to always be prepared with a bag to carry the greens home with me.

Depending on where I harvest, the plants will taste different. This can be due to the soil conditions, moisture, species, and potential environmental toxins. This is why I always taste test the plants before harvesting. I am observant to the environment and use my intuition about how the plant looks. If the plant is curling in a twisting way, this can often mean that it was sprayed with herbicides in its recent past. I am mindful of the spraying routes and habits of my county, avoid areas that receive repetitive spraying, and recommend you also cultivate this awareness in your region.

The dried powder is ideal for traveling and for the ease and convenience of being able to consistently give the body wild minerals from the Earth on a daily basis, especially in the colder months of winter. I use ½ teaspoon of the dried greens and add it to my water or smoothies. The goal is to use it up after the winter season and make a fresh batch starting in the spring; the green powder will stay viable longer, but it is best to replenish the stores anew. To preserve the green powder's integrity, I recommend storing the powder in an amber jar and keeping it in a fairly cool place out of direct sun. At Turtle Lake Refuge, we harvest enough wild greens to make green powders for others who do not have the time or desire to make their own. The green powder has become a favorite product that utilizes an overlooked local resource and creates healthy bodies through exceptional mineral support.

Green Powder Plant List

Here is a list of plants and details to be mindful about when harvesting and preparing your green powder. In general, if the plant is mild enough to eat as a main ingredient in a salad, it is good for a main ingredient for green powders. If the wild plant is too potent for your palate, use smaller quantities for green powders.

Plants That Are Ideal for Green Powder

Dandelion, Plantain, Mallow, Chickweed, Amaranth, Knotweed

Plants That Require Special Attention if Being Added to Green Powder

- Thistle: be mindful of the spines, grind finely and sift thoroughly
- Clover: can become too concentrated, use only when young and sparingly
- Dock: gather only when young because of the concentrations of oxalic acid
- Lambsquarter: gather before the plant goes into flower, otherwise use sparingly depending on its concentrated flavor
- Purslane: a succulent so it takes a longer time to dry, but it is still very beneficial
- Mustard: can be too spicy for adding in quantity; if mild to your tongue, use your own judgment on how much
- Grass: in general has too much cellulose for the body to digest; best to use only very young, tender grasses that easily break down in the mouth when chewing

Green Powder Ingredients, Plant by Plant

All of the wild thirteen and related species can be made into green powder; however, because of the unique characteristics of each plant, the following section offers some guidelines to be mindful of when making your powder.

Amaranth (*Amaranthus spp.*)

Amaranth maintains its mild taste throughout the season and can be used in generous quantities for green powders. The best time to harvest amaranth is when the leaves are the biggest and most lush before going to seed. The leaves are still edible later in the year but they are generally smaller and not as easy to harvest in quantity.

Chickweed (*Stellaria spp.*)

Chickweed is a plant that can be used in large quantities for green powders during its entire growing season because it retains its mild flavor throughout

its life cycle. Use the aboveground growing parts, especially the younger tops of the plant. The lower stems can become tough as the season progresses.

Clover (*Trifolium spp.*)
Some species of clovers can be too potent to be used as a main ingredient of green powders. It is best to use only a small amount from plants harvested in the springtime when the greens are young and mild tasting. As the season progresses the flowers will still be beneficial to use but the leaves often become too strong for use in green powder. It is important to always taste them before you harvest to know how potent they are, and even then to still use in moderation. Trust your tongue to tell you.

Dandelion (*Taraxacum spp.*)
Dandelion leaves can be used in significant quantities at all times of the year when it is growing. Even if the greens become slightly more bitter later in the summer, the greens still make great green powder.

Dock (*Rumex spp.*)
Dock is best gathered in the spring when the leaves are young and tender. Use only leaves that taste good to you. When tasting dock leaves, eat some and wait to make sure there is not a burning sensation in the back of the throat. The older plants accumulate oxalic acids and are not good for green powders (for more info on oxalic acid see the chapter on dock). Even when dock is at its prime, I recommend gathering only a modest amount for adding to green powders.

Grass (*Poacea family*)
When harvesting grass for making green powder, use only young and tender blades that easily break down in the mouth when chewed. In general, many varieties of grass, especially as they mature, contain too much cellulose fiber for our bodies to digest, making it better used as a juice rather than green powder.

Knotweed (*Polygonum spp.*)
The prostrate knotweed is mild in flavor and makes a great ingredient for green powders. They add a slightly sour, astringent quality to the powder. I use the whole aboveground plant. Leaves from other varieties of the genus

Polygonum can vary in nature depending on the species and where it is growing, so it is best to taste each patch and decide accordingly how much to add to your powder. Many varieties are best in the spring when they are tender and sour and can become tougher and dry out the mouth as they age. Some varieties have the potential to accumulate oxalic acids later in the season after the plants have gone to flower.

Lambsquarter (*Chenopodium spp.*)
Lambsquarter is best harvested in the spring before the plant has gone to seed. The plants make a wonderful main ingredient for green powder when they are young and still mild. The leaves later in the season may be too strong in flavor to use in quantity. Taste the leaves from the specific patch where you are harvesting to decide for yourself.

Mallow (*Malva spp.*)
Mallow can be used as a main ingredient due to its mild nature throughout the entire growing season. The whole plant of mallow can be incorporated into green powders—including the leaves, stems, fruits, seeds, and roots; however, I avoid the parts that have become woody in nature and tough to break down.

Mustard (*Brassicacea* family)
The mustards vary greatly in their spicy flavors. Use your tongue to taste each species and decide how much is right for you. They are beneficial for increasing circulation but may be best added to green powders in moderation.

Plantain (*Plantago spp.*)
Plantain can be used throughout the whole growing season. The leaves continue to be good for green powder even after the seeds have developed.

Purslane (*Portulaca spp.*)
Purslane is a succulent plant that retains water in the leaves and stems. Because of this, it takes longer to dry than any of the other plants. However, it has a mild flavor all season and can be added to green powders once it is fully dry.

Thistle (*Carduus spp., Sonchas spp., Circuim spp.*)

Thistle greens can be used for making green powders, but because of the prickly nature of them it is best to grind the powder very fine and sift it through a strainer to avoid the prickles. The spines of thistles have not bothered me personally in my green powder, but it is possible that the spines could still be sharp, so use your own judgment.

Wild Weed Farming

No matter where you live, we each have the great potential to be a wild weed farmer. It is a fun experiment to clear a little area outside and water it daily. Count how many of the wild thirteen plants sprout up. For an indoor wild weed gardening test, gather some dirt and bring it inside to the warmth of your home. Begin watering this local dirt daily and see how many of the wild greens sprout into life! It is truly a miracle to witness how much diversity develops. Nature has already planted the seeds in soil for us and all we have to do to continue the blessing is to simply harvest them! With the simple knowledge of how to use these wild plants, a basic wealth becomes available to us with very little effort. Experiencing the richness that nature provides for free is profound, and can help us trust with sustained sense of security and well-being.

Sprouts!

Sprouting on the Wild Side

Sprouting is a fantastic way to be a gardener in tight indoor living quarters. Sprouting creates fresh produce to eat in just days. All you need are seeds, a jar, and water and you can have a rich source of highly vital foods in a form that is as fresh and alive as it gets. Sprouts are extremely high in enzymes, which help catalyze all bodily processes from digestion to elimination. They are an exceptional food and provide a great amount of available nutrients to our bodies for physical maintenance, endurance, and vitality.

Sprouts provide quick energy through the enzymatic process of converting their own proteins, fats, and starches into amino acids, fatty acids, and simple sugars that are easily digested. The nutritional value of sprouted foods increases by as much as 300 percent in available minerals and vitamins! Sprouts are in their most vital stage of life and offer a dense amount of enzymes and nutrition that support regenerating and healing. They are concentrated, so even small amounts added to a meal give a substantial amount of energy and nutrition.

Sprouting creates an added dimension to a wild food diet. All the wild thirteen weeds make edible sprouts but some of the seeds are easier to collect and work with than others. Although all the wild thirteen can be

sprouted, some of the easiest wild seeds to gather and sprout are clover, mustard, amaranth, lambsquarter, grass, and dock. Some varieties of seeds, such as amaranth, need to be activated by a cold spell. In cooler regions of the world, the seed stays dormant until it overwinters, and an extended time of freezing temperatures prepares the seed for sprouting in the coming spring. If you want to gather your sprouting seeds in the fall for growing over the winter months, place them in the freezer for at least a month to imitate nature's method of preparing the seeds to sprout.

Over the last ten years, in our commercial kitchen at Turtle Lake Refuge we sprouted mung beans, lentils, adzuki, red clover, alfalfa, peas, and rye for recipes at the café and for some of the products we sold in local stores. We also distributed bags of mixed bean sprouts to the local public schools for their salad bar lunch programs. Over the last few years, the policies have changed within our county health department. Currently the rules now prevent growing sprouts and distributing them to the community. The current scare about the potential hazard of sprouts originated from a commercial operation that became contaminated with stockyard wastewater. Sometimes through an unfortunate isolated situation in one place, a rule is made to address the issue that restricts everyone. Over time, perhaps the restrictive laws and perspectives may change.

Although we no longer provide sprouts to our community, we have shifted our focus to teach people to sprout on their own. We offer a sprouting kit that comes with seeds, a jar, a screen, and directions so that people can be empowered to integrate them into their diet if they so choose.

Simple Recipe Ideas to Enjoy Your Sprouts

Jar sprouts make an excellent trail mix. Sprout several kinds and mix them together with raisins and nuts for an irresistible snack. They add a nice crunch to salads and soups, or they can be blended with tahini to make a living hummus. Toss them into smoothies for an extra protein boost. Make a mixed quinoa or amaranth pilaf with your homegrown sprouts, soaked raisins, lemon juice mixed with a bit of raw nut butter, and your choice of seasonings. The possibilities are endless and the health benefits enormous.

Become a Sprouting Master

1. Gather dry seeds.
2. Put the seeds in a clean glass jar.
3. Cover the seeds with three times as much good water as seeds.
4. Put a tiny pinch of kelp powder in the jar for feeding the sprouts extra trace minerals from the sea.
5. Cover the jar with a screen or cheesecloth.
6. Let the seeds soak for approximately eight hours. The optimal time for soaking varies depending on the individual seed. Alfalfa seeds, for example, need a little longer time for soaking whereas lambsquarter or quinoa seeds sprout rather fast and need less soaking time.
7. After soaking, drain the water from the jar and leave upside down at an angle for complete draining. Save this soak water for feeding your houseplants. They will love it.
8. Rinse your sprouts twice a day and leave upside down for thorough draining after each rinse.
9. In a few days most of your sprouts will have white tails poking out of the seed. This indicates that they are ready to eat. We usually let clover and alfalfa grow until their tails are long and green.

Growing Microgreens

Local microgreens and the growers

Microgreens are a delicacy in the culinary world. High class restaurants seek out microgreens to garnish their dishes to bring an added charm to the plate and a richness to a meal. Turtle Lake Refuge has been growing microgreens for fifteen years for our community. We have discovered that microgreens are an important product that benefits our community and they have a true viable market because of their year-round availability. We grow them for many of the restaurants in town, the grocery stores, and most importantly for the public school salad bars. Although it took a full year of regular meetings and discussions with public school district employees, our microgreens were the first local food brought into the public school system in our town. Now the local food movement is in full swing and many other regional foods are included in the school menu.

Growing microgreens in your own home is a joy and adds beauty to the kitchen. It is truly a blessing to be able to grow garden greens indoors and harvest fresh produce all year long. At Turtle Lake Refuge, we have been growing year-round sunflower greens, pea shoots, buckwheat lettuce, radish greens, and wheatgrass. We have recently added some other wild varieties of local seeds such as amaranth, lambsquarter, and clover.

Although all the seeds of the wild thirteen have the potential of growing edible microgreens, there are some seeds that are easier to harvest and gather for this purpose. The wild seeds that grow the best microgreens include amaranth, lambsquarter, grass, knotweed, mustard, clover, dock, and mallow.

Microgreens are delicious served in salads, on sandwiches made of manna bread, and as lovely garnishes for living quiches and pizzas. Marinate them in olive oil, salt, and lemon juice to create a texture as if they were sautéed. Or simply eat them right out of the tray for one of the healthiest snacks available.

Become a Microgreens Planting Master

1. Follow steps one through six in the Sprouting Master sidebar. We begin the sprouting process in a jar so the sprouts have a head start and can easily take root once they are planted in dirt.
2. After soaking for eight hours, drain the water from the jar and allow seeds to sprout further in the dry jar for up to eight hours, making sure to rinse once before planting.

3. Spread a 1-inch layer of soil into a planting tray and level the dirt.
4. Spread your seeds on top of the soil so that the seeds do not touch each other but are covering most of the dirt.
5. Gently and evenly mist the sprouts and soil with water.
6. Cover your seeds with an empty tray or stack several planted trays on top of each other and top the whole stack with an empty tray. The goal is to create a dark, moist environment for the sprouts' germination. All the microgreens (except wheatgrass) like a little weight on top to help them germinate and grow strong.
7. Place the planted seeds in a relatively warm place and leave covered for several days, misting daily. It is good to rotate the trays if they are stacked, by placing the bottom one on the top. The wheatgrass must always stay on top of the stack and only be covered with an empty tray.
8. Careful monitoring of watering is key to successful growing. Mold indicates they are being watered too much, so reduce the water and allow the sprouts to dry out. If the soil appears dry, water thoroughly and evenly so the sprouts can keep growing.
9. When the young microgreens start pushing up 1–2 inches in height, they are ready for the sunshine. At this transition stage, water thoroughly, remove the cover, and put the tray where it will get direct or indirect sunlight. Grow lights are an option if the space is rather dark. In the summer the greens can also grow well outside.
10. Continue to water them once a day, very thoroughly when they are young and with a little less water as they mature.
11. Harvest your greens when they are fully green and bushy.

Chapter 3

Nature’s Permaculture Plants

Reminding Us How to Embody Deep Ecology

The best permaculture teachers are the wild weeds. If we review the core ethics of permaculture, the wild weeds are doing it instinctively. They are nature’s best teachers in how to heal people, heal the Earth, and share their abundance. When we go deeper into the concept of permaculture and deep ecology, the wild weeds are superior examples of how to apply these principles to our lives.

Permaculture is a movement originated by Bill Mollison and David Holmgren in the 1970s, and can be considered a practical and theoretical design process that integrates concepts and skills that work with the wisdom of nature. It creates resilient systems that sustain yield and fertility for future generations and build the integrity of a diverse interspecies community. In practice it is rooted in deep observation of specific trends, landforms, weather patterns of regional places, and unique systems that reveal themselves only after extended time. At the heart of permaculture is a core life ethic that all living organisms have an intrinsic worth in and among themselves. Weeds are certainly included in this philosophy too!

Magic starts to evolve when we allow the land to tell us what to do and be our primary guide in every decision. Sometimes we may start with our own vision, but very quickly (if we are listening to the land) our own agenda finds adjustment and greater harmony with nature’s symphony. When there is a cocreative experience with all the other life-forms that also live, eat, and reside on the land, we know we are on the right track. When we let go of our individualistic plan and collaborate with the game of all the players present, our outcome is in far greater alignment with the bigger picture and

ultimately with nature itself.

Deep ecology reminds us how to bring these permaculture principles into a deep integration into our lives, our actions, and our choices. One of the most important objectives of deep ecology is similar to that of permaculture in that every form of life has its equal right to live and blossom. When we align our inside with the outside environment, we embody the sweet spot of harmony with all of life. To be in the deep ecological flow of nature is to have the honor of giving and being open to receiving while being humbled by our interconnectivity. Being of service to nature is a golden path with treasures of the sweetest rewards.

Creating a labyrinth garden

Dolores LaChapelle refers to the basic guidelines of deep ecology in her book *Earth Wisdom*, as laid out by the Norwegian deep ecologist David Rothenberg. The basic points of the platform of deep ecology are:

- There is intrinsic value in all life.
- Diversity, symbiosis, and thus complexity explain the life of nature itself.
- Humanity is a part of nature, but our potential of power means that our responsibility toward the Earth is greater than that of any other species.
- We feel estranged from the Earth because we have imposed complication upon the complexity of nature.

- On the outside, we should change the basic structures of our society and the policies that guide them.
- On the inside, we should seek quality of life rather than higher standard of living, self-realization rather than material wealth.
- New kinds of communication should be found that encourage greater identification with nature. Only then will we see our part in it again.

In addition to the key concepts of deep ecology, there are a number of permaculture principles that help us align with the forces of nature. The wild weeds follow these principles impeccably, and through their intrinsic wisdom, can teach us how to embody a state of deep ecology! They are:

- Multiple purposes
- Edge effect
- Least effort
- Sharing abundance
- View problems as resources
- Use and value diversity

A bee-happy garden

The Multiple Purposes of Wild Weeds

The wild weed species are experts at multitasking. They are an example of nature's wealth thriving in every crack and crevice along the pathways of the

human footstep. The wild weeds are essential in nature's affluent economy. Where there once was compacted and barren ground, there is now a temporary ecosystem that has sprung up to begin cultivating life back into the disturbed land. The weeds' deep taproots pull Earth elements up into their leaves, and every season the plants drop their foliage, composting into new topsoil for future land fertility and species diversity. Earthworms thrive from the aeration of roots loosening compacted soil. Honeybees and other wild pollinators gather the nectar and pollen from the flowers. Birds and mammals eat the flowers, leaves, and seeds throughout the whole season. Savvy humans also participate in this free abundance by harvesting the greens, roots, and seeds for their mineral-rich nutrients and free medicine.

Weeds and the Edge Effect

Another guiding principle in permaculture is to optimize the edge, or the marginal spaces. The areas on the edge between different environments are typically where greater diversity is found. Humans are creating worldwide development everyday through the construction of buildings, roads, and clearings and the edge between wild and civilized is growing. Although the civilized world overtaking the wild spaces leads to a decrease in overall diversity on a large scale, the marginal spaces found between the two worlds create a new ecosystem for greater diversity on the micro-scale. These include edges of cities, edges of sidewalks, edges of roads and trails, and edges of buildings. As global permaculturists, it is an efficient practice to utilize the resources being cultivated at the edge. These places create niches for growing wild edible foods and medicines. With human disturbance being the greatest "gardener" for these wild weed species, we witness the plants thriving in the wake of our activities across the globe. And as human impact continues to broaden its circumference, the weeds are being sown just as fast and just as far. As much as I would like to see an end to the continual development of our wild places, I acknowledge the trends of the present situation. It is now up to us to find ways to reduce further impact and to benefit from what is currently happening. In light of our present global, fast-paced, changing times, the weeds on the edges of society are quickly becoming one of the greatest resources available to us.

The Path of Least Effort

Often the best way to find the balance of equilibrium is to do less or even nothing. Nature will do the work for us and likely perform a far better job! When weeds are viewed as a nuisance, it requires extensive effort, time, money, and resources to attempt to keep them at bay. But if we capitalize on the natural succession of weeds, we benefit from the least amount of work and greatest amount of return. Fighting nature to try and create a different vegetative landscape than the wild ecosystem is hard work! Making the lawn perfect, the edges empty, and the walkways sterile and pristine may be expending energy that is out of accord with nature. A more lucrative approach is to capitalize on the natural succession of weeds and benefit from the abundance of nature's efficiency.

Weeds are experts at regenerating stressed lands. They were hired by nature specifically to be there because each particular weed is the most qualified for the task at hand. As I described in the Introduction, the wild weeds are succession plants and, after performing their job of refertilizing and remineralizing the soil, will move on to new disturbed lands. They also provide forage and nectar for pollinating insects, a critical element in sustaining life and food sources on Earth for many species, including humans. Their life's work over the years will create a new fertile habitat for another species to move in and thrive. This does not happen instantly, of course, so a certain amount of patience is required on our part. But in the meantime, why not harvest the bounty of food and medicine they provide while they are here? They are truly the unseen heroes of our time.

Getting a yield from the weeds year after year is a long-term reward that requires little input on our part. By allowing the weeds to simply *exist*, we take the path of least effort. We are free from having to manually fertilize and aerate the soil, free from watering the grounds more often, free from bringing in mulch from outside sources, free from preparing the ground for planting—we are free from even planting. We become empowered by the knowledge that weeds are an example of least effort. All we have to do is harvest the bounty! Communities save money, time, and energy by avoiding the effort and the resources involved.

Recently I attended a lecture given by a retired San Juan National Forest supervisor. The talk was titled, "Wilderness Management: What's So Hard

about Doing Nothing?" The talk was honoring the fiftieth anniversary year of Lyndon Johnson signing the Wilderness Act in 1964. The speaker explained the roots of managing wilderness by clarifying that wilderness is a human concept and a basic need. He spoke about the perspective of allowing natural processes to work themselves out, a path that requires humility because we do not always know the full cycle of nature. The goal of wilderness management is to maintain areas of unmanaged land, to allow nature to do what is natural without human agenda and interference.

I appreciated his experience and views on this concept; however, when I asked him a question about utilizing that same perspective regarding non-native plant species that have found their way into wilderness areas, he said in this case it did not apply. It was obvious that this was a contradiction in a philosophy of wilderness management. In wilderness areas the government is currently using petrochemical herbicides to eradicate the invasive species. But the question arises whether herbicides themselves are an extremely invasive approach to "managing" our wildlands that creates more harm than good. He did indicate that perhaps in the future this would change. I pray that we fine-tune our land managing practices to honor the bigger cycles at work and move toward less interference and more allowance of nature to thrive.

Home Grown Apple Days festival

Creating Abundance

In nature's economy, there are only riches! All pieces in the puzzle of life are resources that recycle through the magic of alchemy. Nature takes the wastes from one and transforms it into gold for another. Let's explore nature's currency of abundance through two examples, first the apple and then the wild weeds.

On a sunny autumn day under the brilliant blue sky, you walk past an apple tree loaded with blush-red fruit. A slight wind blows through and an apple falls at your feet. You pick it up and notice there is not even a bruise. You indulge in its sweet juicy succulence. As you fill yourself to satisfaction, you are left with an apple core containing eight seeds. You casually toss the core into the nearby field. This one apple has the great potential to grow ten more trees producing thousands of apples year after year—with each apple capable of creating more orchards and a bounty of apples. In my experience, wild apples that I have harvested from trees growing randomly on the side of the road in the ditch are just as delicious as a store-bought variety.

In my hometown in Colorado, we humans participate in nature's market through an annual Home Grown Apple Days, a festive apple celebration each fall. Community members commute on bicycles and in trucks to harvest the huge quantities of ripe fruit still on the trees in and around town just after the first freeze of the season. After collection, all the apples are deposited in the central park on Main Street, making a huge apple mountain. The next day the whole community comes out to celebrate. We have six or more hand-crank apple presses all operating at the same time, each pressing the apples into juice. Some of the juice is consumed on the spot, some is frozen for later, and additional juice is placed in large ceramic crock pots and cultured into apple cider vinegar. The remaining juice is brewed into beer and hard apple cider. The pulp from the apples that have been sorted as "worm-free" are set aside for drying. Once this special pulp is dry, we grind it into a very fine powder with a blender, turning it into apple sugar—to be used as a local winter sweetener. Some of the remaining pulp is distilled into ethanol to be used for fuel for running our farm trucks and town vehicles. The rest of the apple pulp is fed to local pigs and chickens or composted. Apple compost makes the best soil for next year's fruit trees.

And yet, even after all these uses there are still more apples than we can possibly gather. So next in line for the feast are the birds and other creatures from the woods venturing out to nibble on the fruit. The birds will still be foraging on the apples that remain in the trees even throughout the winter. And still the abundance continues with the excess fallen apples lying on the ground. Coyotes, deer, bears, raccoons, badgers, and skunks all partake in the banquet. As the season wanes, the apples eventually are covered in leaves and begin to decompose and rot. This is the time when the earthworms, ants, and roly-polys have their party and dine together on the mushy pulp. Apples break down into smaller particles, transforming into new resources for the next life-form in the food chain. The number of microorganism players in this exchange is too great to number, but the cycle continues, creating fertile soil for sprouting another apple seed to begin the game anew.

Another example of nature's gold is the wild weeds. In my hometown we have used the weeds, particularly the dandelion, to help us connect as a community. Each spring in early May, we host a community-wide celebration called the Dandelion Festival. At this time of year, we have more spring greens than we know what to do with! So we celebrate with music and merriment until after dark. We make dandelion pesto, dandelion ice cream, dandelion lemonade, dandelion wine, dandelion musical instruments, and dandy candy. The four local breweries in town collaborate to make a dandelion beer for the occasion. Throughout the local schools we host a dandelion drawing contest with the winners getting dandelion ice cream cones. We also promote organic land steward practices, which are a key ingredient to deep ecology and permaculture basics in a community. Less lawn sprayed with herbicides means more food for the party! And everyone is invited to this celebration, including the birds, bees, earthworms, and microorganisms. Nature's way is to include all beings on the VIP guest list!

Nature is rich and generous! All beings play an essential role as the waterfall spills the gifts to the next cycle in the waterwheel of life. Our job is to enjoy the ride with awe-inspiring gratitude for all that exists and trust deeply in the simple path of overflowing abundance. As students of life, our lesson is to see through the lens of nature's eyes and celebrate our inherent wealth by eating, dancing, singing, and loving before we eventually release our own physical body over to the great circle's turning for renewed life in

the next form of treasure.

Seeing Problems as Resources

One valuable permaculture principle in action is shifting our perspective to help us view problems with a new lens. When we change our pair of glasses, we see that in the root of the problem lies the solution. When we start seeing resources, opportunities, and answers from the excesses, nuisances, and adversities of a situation, then we are aligning with nature's way, a path leading to harmony with our environment. This path of alignment increases our efficiency as individuals and as a culture by utilizing more of our precious natural resources, time, and energy. This principle describes the practice of taking something that is a burden and turning it into an asset. It is a true talent to shift our vision and find ways to extract treasure from a pile of rubbish. This skill is one of an alchemist that transforms a less desirable material into a more valuable one. Nature is the greatest example of a master alchemist.

One human perspective is to see the weeds as a problem and taking over, or displacing diversity, or ruining the landscape. Let's question this assumption. By accepting what is rather than resisting, we open ourselves to another point of view regarding any given excess or problem. We can then recognize the potential advantages and opportunities available to us. By simply being willing to shift our lens, we move from the tunnel vision of problems to a plethora of solutions.

When we get to the core of it all, everything is sacred. All life is essential. We are intimately connected and as a global ecosystem it all works because of everything else. When we try to eliminate one piece, there are negative impacts to the whole. Thistle is one plant that is on many noxious weeds lists. But thistle is as valid a life form as any other and is playing an important role. If we ever start to think thistle is a problem, it helps to shift perspectives and remind ourselves that everything is a resource. In reality, thistle is not taking over but more accurately it is regenerating an overgrazed or compacted or disturbed field. Rather than attacking the thistle with herbicides and disrespecting its divine life force like a subcitizen of planet Earth, another approach is to relax and see it as a valuable cog in the whole wheel of life.

Wild resources

Weeds have been and continue to be given derogatory names, devalued, and even feared. How exciting and rather adventurous to be in a relationship with a wild, unruly, deviant, rebellious revolutionary! Weeds are not to be feared, but revered as plant heroes in this day and age that can be saviors of the environmental plight that we have created in the twenty-first century.

When we shift into a solution frame of mind, we see the wealth of the plentiful thistle. From this perspective, we find inspiration to harvest the thistle for root tea and dry extra for the winter, to juice the leaves daily for alkalinizing our bodies and preventing illnesses from the common cold to cancer, and to chew the flowers as gum and share the magic of its purple

beauty with kids. Perhaps some of the thistles may need to be removed or harvested so we can have a picnic, walk barefoot, or play ball. For the ones we are not planning to eat or drink or use as medicine, we can use organic approaches for removal such as pulling by hand after a rainstorm or laying down cardboard and deep mulch, which discourages thistles and also helps develop enriched soil in that area. Goats, cows, and pigs eat thistle and are good weed controllers. A layer of black plastic can also suppress them. There are organic means of liquid solutions, such as vinegar or corn gluten, salt, or burning them with a flame weeder. These methods may not be as harmful as petroleum-based herbicides, but these also affect the soil and all other plant life. It may be a far better strategy to see the value in thistle instead.

In many places there are regulations that *require* landowners to eradicate many weed species such as thistle. If the county notices a patch on private land, the owner can be fined. In some places they have the right to spray the area and then hand you the bill. The irony is that the spraying of herbicides itself is a major disturbance that leads to a continuation of succession plants and actually keeps the area from naturally stabilizing over time. Although the herbicide will kill the plants upon contact, the practice of spraying keeps the continual pattern of ecological succession plants returning to condition the soil just as if there was a natural disaster year after year. That is why herbicides programs are limited in the long run. Sadly, the United States government spends $145 billion annually in the attempt to eradicate specific weedy species of plants. Unfortunately, this budget is not decreasing each year because of the success of the spraying practices. The annual budget has, in fact, continued to increase each year.

If studied more closely, the influence of herbicides does not create a greater stability within an ecosystem, but actually sustains the cycle of disturbance in an area. Cities and counties across the country are locked into the system of spraying, and have to spray the same amount or more herbicides each year at the same locations. And yet, despite these spraying practices, the weeds come back year after year. This is because nature views the disturbance from herbicides as the same as any disturbance. Nature sends in the ecological species as a tactic to secure future life diversity in the long run.

The following two examples offer a holistic weed-and-feed method using

simple organic ingredients that create minimal disturbance to an area; the focus is more on helping build the soil ecology's health, which ultimately prevents weeds proliferating.

Weeds Offer Solutions to Many Problems

1. Fertilize soils
2. Maintain water in the ecosystem
3. Retain moisture
4. Attract pollinators
5. Are useful medicinally
6. Provide daily nutrition
7. Encourage earthworms
8. Stabilize topsoil from eroding
9. Aerate the soil
10. Break up compaction under the ground

Compost Tea Fertilizer

Turtle Lake Refuge makes compost tea by using finished compost and worm castings harvested from our worm bins. Using a 55-gallon drum, we make a tea bag using a T-shirt filled with 1 gallon of worm castings and 5 gallons of finished compost. We add in 5 tablespoons of kelp seaweed, 5 tablespoons of molasses, and oxygenate the mixture in purified water for 24–48 hours. As the tea brews, it becomes thoroughly oxygenated through a solar-powered aerator. We created our 55-gallon drum to cycle all the water out the bottom of the barrel and up through two pipes leading back into the main container. This system creates a vortex spiraling action, which further supports an increased synergy of nutrients, water, and current that promotes breeding microorganisms contained in the compost and evenly oxygenates the entire tea. We have experienced outstanding results from applying the compost tea to gardens and lawns for building vitally alive and healthy soils.

This simple method of fertilizing is successful because of two main concepts: easily assimilated nutrients from the compost and profuse life force activity from the microorganisms. By bringing an army of

microorganisms into the soil ecosystem, this probiotic activity increases the efficiency of the roots to metabolize the minerals and nutrients provided by the compost and worm castings. By using organic methods, the roots of the garden plants or lawn grass are supported over the long term in gaining strength and will outcompete other wild weeds. The weeds are opportunists and take root if the area is compromised. Through applying compost tea and utilizing other organic practices on lawns such as overseeding and aerating the soil, the need for weeding will decrease as the grass becomes healthier each year.

Although I personally feel rich when I see a diversity of plants growing symbiotically throughout a lawn, this perspective may not be welcome with every community member's aesthetic tastes. Several customers of our organic land stewardship program, Bee Happy Lawns and Gardens, conducted test plot studies on their lawns and showed how the live organic fertilizer tea made a significant difference in creating green, vital, and healthy grass.

Biodynamic Weed Remedy

Although there are always great benefits from the wild weed species, there also may be a situation when fewer weeds in a given area is desired. In this case there is a biodynamic weed remedy that is a nontoxic approach to communicating with the land and preventing the wild weeds from proliferating.

I encourage experimentation using this classic biodynamic recipe as an alternative way to clear weeds from an area for people who may need to respond to the county regulations but do not want to apply herbicides. The suggested method uses weed seeds and water as the two ingredients. The remedy is based on the concept of homeopathy. Homeopathy is a medical science originated by the German physician Dr. Samuel Hahnemann based on the 'Law of Similars,' a principle that 'like cures like.' Homeopathy works by taking a natural substance that normally creates the symptom and preparing it in a very dilute form to stimulate a healing response.

This biodynamic recipe's effectiveness originates in how it is prepared. First, gather a cup-sized container of weed seeds. Closest to the full moon is the time when the energy for this remedy is most powerful. On the waxing moon or in the moon of Leo, burn the seeds on wood until it all turns to a

white ash. Add the ash to a quart of water. Shake the ash water vigorously by pounding it against your hand a hundred times. Take 1 teaspoon of the ash water and add it to another quart of water. Shake the mixture the same as before. Again take 1 teaspoon of the dilution and add it to another quart of water. Repeat for a total of ten times. By the tenth time, the water will only have a trace amount of the ash, but the potency of the mixture increases exponentially. Add this mixture to 5 gallons of water and spray an area of land to discourage the weeds from growing in excess.

If you are working with perennial plants that spread by roots more than by seeds, a similar process can be performed by burning the root into an ash and using it the same way. Another method is to harvest 1 gallon of the plants you want to remove from the area and soaking them in 5 gallons of water for three days. Apply the weed water to the land to prevent the plant from growing in excess. There still may be a few of the plants that sprout up in the area, but the intensity will likely be less and the more of the diluted ash water or weed water that is applied to an area, the better it works. The successful results of my personal explorations are still in process.

Thistle flower weed remedy

Become a Farmer of the Wild Garden

I consider myself a farmer of the wild garden. Although I do spend time planting and thoroughly appreciate the luxury of cultivated vegetables in my diet, I consciously choose to garden in harmony with the wild plants. The wild foods tend to spring up first and are at their optimum eating window when it is time to weed them for dinner. I harvest my amaranth and lambsquarter when it is time for the tomatoes and cucumbers to have a little more room to grow fully. If there are wild plants that I choose not to eat or use for medicine, I use their leaves for a mulch-and-soil amendment to replenish the ground with the minerals from the plant after it decomposes. Therefore, I place the harvested plants carefully around the base of the other garden plants to support them by this added naturalized mulch. This offers

minerals and water retention for the cultivated garden plants to continue to flourish.

Turtle Lake Community Farm

A highlight for me regarding an abundance of weeds in the garden year after year is that they are some of my favorite foods. I feel so blessed by their presence again and again! I don't have to plant them, water them, or tend them in any way. All I have to do is harvest! Because I understand their vast benefits for my own body and the Earth, I feel rich because of them. I give great appreciation because I know that they are more nutritious than anything I have planted. The best part of being in alignment with the wild weeds of the garden is that there is joy in every step of their growing stage—from saying "Hello" when I encounter them, to "You are welcome" when I support their thriving, and "Thank you for your service" when I harvest them. It brings me great fullness of my heart to honor all beings on planet Earth with respect!

Turtle hoop house

Cultivating the Attitude of Appreciation and Joy

The weeds themselves are actually filled with light, the sun's light that has been transformed into green chlorophyll. But let's explore the dark side of weeds. The darkness I am referring to is how they are discriminated against as a life-form in some circles of our civilization. We may have all been witness to this "war on weeds" perspective from the local county and forest service land management practices to individual landowners and even within ourselves.

When we embody the emotional frequencies of anger, hatred, or irritations of an intruder in the garden, it is not good for personal health. It also costs money, time, physical labor, and emotional stress to remove them. Hundreds of wild plants are listed on noxious weed lists enforced by local regions across the globe. Thousands to millions of dollars are spent each year on herbicides with the intention of eradicating the weeds.

Many problems arise from this practice. First of all, the herbicides are toxic to all life forms. Second, they have a long-lasting foul odor due to the chemical composition. Third, they are not effective in the long run. Why is it

that the weed sprayers have to spray the same land every single year, sometimes several times a year, and the weeds just come back again and again? Herbicides disturb nature's evolving ecology and continue the pattern of disturbance. They create a greater need for the miracle work of weeds and indicate to nature to bring in the ecological succession plants to begin healing and regenerating the land.

A man joked with me during a lunch visit that the only way to get rid of one kind of weed is a backhoe. This person, however, may not fully understand that the very nature of tilling the soil or interfering in any way with the soil only cultivates the ground for more to grow.

Encouraging tolerance for all life is an important state of mind to cultivate within our community and ourselves. Whether it is tolerance for human races, sexual preferences, or other life species, it is a worthwhile journey. It is a spiritual practice to love all beings unconditionally. It is an art to see the beauty in all that is and to hold all beings with a compassionate view. I practice unconditional love with my neighbors who spray herbicides for a living. I may choose to see the world from a different point of view, but I also choose to love them anyway. Holding them in a loving space does not mean I will avoid being an activist for what I believe. In the biggest picture, I wish to support the quality of all life for all beings. Because my intention is clear, I will do my part in helping the trends move in that direction. Herbicides can create harm for so many species of life, from the most intimate—our children and ourselves—to the smallest and unnoticed microorganisms, to everyone in between: birds, fish, bees, and mammals.

The path that nature takes is most often our best guiding example of permaculture in action. To collectively release outdated practices that harm and to collaborate toward the common good of all is truly a much more pleasurable journey with a bounty of harvest to celebrate at the end.

Chapter 4

Wild Intelligence

When we eat from the land, ingesting plants picked right from the Earth, we become our landscape on a cellular level. The same cells that are vibrating with the plant's life force now become integrated into the core essence of our body on a physical, emotional, and spiritual level. The plant's wisdom embodies us physically as its molecules transform into the matrix of our cells, blood, and muscles. Emotionally we align with the clarity and joy of being alive. Spiritually our receptivity opens to the miracle and magic of life unfolding in the present moment. This energy is channeled through us from the plant's life-giving nature.

The brilliant connectedness of the plant acts through us in all of our thoughts, decisions, and actions. Our daily relationships are built in large part by the foundation of what we are ingesting. When we eat from a package, we give priority—even if unconsciously—to the factories that created the plastic, the pollution, and the consumptive unintended consequences of our choices. When we nourish ourselves from the land's natural harvest, we build relationships with the ecosystem where we live at a very basic and primal level. We gain intimacy with the microorganisms under the ground. We establish partnerships with the insects, and the neighboring plant communities that collaborate with the ultimate expressions of harvest. When we eat from the Earth directly, we gain the intelligence of nature that enters our bodies in a pure and whole state. Every other animal on planet Earth eats locally grown foods, wild foods, and fresh foods unaltered by heat or refinements. The majority of wild animals who are living in accordance with nature's cycles experience an optimal state of health and well-being throughout their lifetime.

Hollyhock

Several years ago, I was asked to provide a wild foods lunch for over thirty people from a community garden in the Bay area of California. I went into the forest to gather for the event and was easily able to harvest more than enough food to feed everyone a delicious gourmet lunch while hardly leaving a trace of where I had been. I prepared the meal using all the ingredients in their vital and live state. I reflected later that if I had cooked the wild foods that I harvested that day, there would not have been enough to feed everyone. The plants would have been processed down to a very small

amount and we would have all gone hungry. This was a beautiful lesson in my mind—if we want to sustain ourselves on wild foods, we must take the example of wild animals and eat it in alignment with nature. The wild animals eat their food fresh with minimal processing. In nature we witness most every other species ingesting their sustenance in a form that is local, wild, and alive. The benefits of eating living foods are vast.

The enzymes in food become denatured when heated above approximately 115 degrees. Without enzymes in food our bodies are required to work harder and use our own resources to process, digest, and assimilate the foods. Proteins and fats as well as other essential nutrients can be severely altered or damaged due to cooking, which demands the body exert more energy for processing and elimination. Eating foods in their most vital and alive state is a far more efficient way to receive nourishment. When we eat wild plants fresh, a little goes a long way. Imitating how the wild animals eat from the Earth is a fabulous practice for human beings. It has become somewhat of a lost art. It is time to relearn and integrate these simple wise practices of nature to help evolve humans into a more noble species.

Hollyhock burrito

Although studying the eating habits of wild animals may point us to an ideal path to aim for, ultimately humans and nature are adaptable. Although I am rooted in a base of local wild and living foods, I also am adaptable. I find that there is a continuum in my journey from, at times, choosing to eat like a wild animal right off the land with no processing to a wide range of food preparation—spicing, dicing, and slicing to fermenting and even occasionally cooking for preservation, flavor, or integrating with the social influences of living in our modern society. There is no absolute right or wrong but rather a developing awareness of health for ourselves and the planet that guides the way.

At the Turtle Lake Local Wild Life Café, we focus on simple and gourmet recipes to welcome new customers into the delicious potential of local wild and living foods. We aim for as much local and wild food as possible but we also choose to include some other ingredients that make the dishes more palatable for customers who are just transitioning into more healthful ways of eating that may not grow locally—like an avocado, cacao, or coconut to create a delicious texture or flavor. It is empowering to tap into our primal, wild, instinctive nature that knows how to survive on the most simple foods right from the Earth near our homes, while still being able to integrate and balance cultural foods and the civilized luxuries when appropriate.

When we eat wild foods with minimal processing, we gain superior nourishment and energy with the least amount of effort. Our bodies require less food intake due to the fact that what we are eating is still at its peak of vitality. Through the enzymatic integrity of the foods, our bodies utilize the nourishment with utmost efficiency and spend considerably less time needing to process and eliminate waste products. We also gain a pure source of energized water that is found in whole live foods. One of the first molecules lost in cooking is the water in the food, but when we eat the wild plants fresh, we gain their mineralized and elementally charged liquid as part of their gift of nourishment to our bodies. The high water content present in fresh foods frees us from needing as much water from other outside sources. Water is an essential ingredient to optimal health and it can be challenging to find good sources to drink from today’s modern waterways. City water is at risk from the chlorine, fluoride, and other chemicals that can be added to sterilize and supplement the water for drinking. Gaining clean and energized

water from our foods is an excellent way to avoid the mineral depletion that can occur from tap water and even some filtered or distilled water.

When we mimic our wild relations and eat directly from the Earth, we open to the finer intelligence that cycles throughout the universe. We receive the subtle wisdoms that are often missed when the body is congested with processed foods and depleted of life vitality. Wild foods are active in the evolution of the Earth. By participating in the wild harvest, we join the collaborative journey of evolving together with the entirety of life. Packaged foods, by contrast, can numb our senses and dull our brilliance. This pattern becomes obvious as we witness how a large part of human civilization is undermining the Earth's integrity; the degradation of our environment is largely due to the unintended consequences stemming from the additive habit of needing processed foods in our diets. Not only are they processed, but also commonly grown and shipped from far regions of the Earth. In a typical package of food, there might be over eight ingredients listed on the package. Each one of these ingredients is likely grown in a different location, processed in another location possibly on a different continent, and then combined together in yet another place, ultimately making the food a very confusing influence in the body. Who are we when we eat all these isolated parts of foods? The food product often leads to a core disconnection of our primal integrity as whole beings and can create a lack of grounding or sense of place.

The human desire for many processed foods is often experienced as a craving that can lead further into chemical imbalances in the body and continue the cycle of addiction. We are similar to a wild bear who gets a taste of refined sugar from an overturned trash can—and then becomes instantly addicted to the intensity of sugar energy that is felt in its body. This sugar high lasts only for a short period of time and then leads to an energy crash, causing the bear to return again and again into the dangers of civilization for another taste. This unfortunate habit leads the bear away from the wild and efficient nourishment that comes from whole fresh foods found in the forest. The same is true for humans. Processed foods are more similar to a drug than to any kind of nourishing food. In our journey of returning to a wilder diet, it is key to work through and release addictions on many levels, including mental, emotional, and physical addictions.

Wild foods offer an exciting path to integrate into our lifestyle at this

unique time in civilization. We humans have shifted away from the simple and natural state of foods into a more complex and confusing system of diets. By incorporating wild foods and simple practices into our lives, we bypass much of the harm that is unfolding at an alarming rate in our natural environment. We reduce trash and pollution. We can limit our use of the factories creating the plastic packages, the advertising, the waste, and the excessive travel. Instead we can choose to open to the interconnectivity of all life. As we eat a berry right off the bush, we experience a burst of rain juices and a sun-kissed spark of life. Our cells celebrate the richness of Earth minerals drawn up from ground and are invigorated by the enzymatic activity of the fresh fruit. The experience of eating becomes so much greater than trying to get the right amount of calories or protein in our body. It becomes an intimate exchange with creation itself. We become the berry and the berry becomes us. We are graced with all of the plant's life wisdom fully intact. This is an ecstatic miracle of life.

As we eat the wild foods from the Earth, we open to the intelligence of not only the plants themselves but to all the relationships that support the plants' existence from the ground up. We connect with the soil organisms, the weather, the rain, the sunshine, and the whole community within the forest or region. We remember who we are, and that we are a part of all of it, simultaneously. This kind of soul nourishment creates a delicious energetic state that fuels our greatest dreams and rekindles our purpose for being alive. The contrast of this wild experience of living compared to conventional civilized living is a huge leap. Once we feel the difference from the inside out, we understand. But if we have never felt anything but processed foods as the norm, we may not even know we are missing something. Perhaps the instinctual part of us that is connected to the original wild roots of ourselves wants to wake up.

Wild Plants Used to Overcome Addictions

- Dandelion juice: Eases and eliminates hangovers and acidity
- Mallow juice: Lubricates stiff joints, protects muscles from acidification and inflammation
- Dock root: Eliminates excess accumulations from the bowel and

regenerates the kidneys

- Knotweed: Tones the tissues, organs, and glandular system; supports kidney health
- Thistle juice and root tea: Alkalinizes the body and supports cleansing of the liver for greater efficiency and elimination of toxins from the body
- Purslane: Offers vitamin C to enliven and replenish depleted and dehydrated cells, vitamin A, and omega-3 fatty acids; supports the brain and protects organs
- Plantain: Helps draw out subtle toxins in the tissues, blood, and cells while rebuilding the mineral content of the body
- Grass: Binds to toxins in the blood and removes them through the elimination system, creates alkaline body chemistry for reducing addictive habits, and replenishes the body with minerals that may have been depleted from ingesting refined foods
- Clover: Replenishes the body with minerals after a period of stress and depletion and begins the regenerative process of healing
- Mustard: Increases circulation and eliminates the stagnation that builds up from processed foods while inspiring creativity for pursuing new health habits
- Lambsquarter: Offers a great source of protein to build healthy muscles
- Amaranth: Offers a rich source of protein and enzymes, minerals, and chlorophyll
- Chickweed: Provides a great source of vitamin C and a gentle sour taste of hydration and electrolytes

Incorporate the Wild Weeds on a Daily Basis

One of the easiest ways to shift into this deeper state of being human in a wilder way is by welcoming the wild weeds into our life on a daily basis. Start with bringing the dandelion into the salad bowl. Add the mallow “cheese wheel” fruits to pasta. Grind up the dock seeds into bread dough. Blend the thistle greens into lemonade. Start by integrating a little here and there. This practice opens the door for further guidance by the plants themselves. The plants and our bodies will lead us deeper along the path of

nature’s wisdom at the right time and pace. Our enthusiasm may inspire others to give the wild side a try. Together as we integrate the wild back into our civilized lifestyles, we collectively begin to regain our integrity as a race that may have lost its way. Our mother Earth will gladly welcome us back home, back into her bosom of abundance and grace.

Back from harvest

Eating Wild Helps Fight Fear

Eating the locally grown wild weeds provides our being with more than just nutrition. These plants have the brilliance to know how to adapt to change. The wild weeds have the knowledge of how to survive in changing times, climates, temperatures, and conditions. They have mastered the ability to be resilient and thrive in typically inhospitable conditions such as neglected, compacted, and disturbed areas. As we ingest them in our diets on a daily basis, we begin to integrate in ourselves their amazing ability to adapt and overcome. This is the perfect medicine for humans of the twenty-first century. Not only do the wild weeds contribute to our ability to survive while the state of Earth’s equilibrium is changing rapidly, but they also remind us to deeply trust all that is. They share with us the knowing that everything in the cosmos is in “perfect divine order,” a saying by my friend, Mama Olatugie from New York, who travels the world—and even now in her late

eighties still teaches her wisdom in ways of letting go of fear. The wild weed medicine helps us let go of fear; fear of not having enough money, fear of survival, fear of scarcity, fear of not being free, fear of not having enough time, fear of not belonging, fear of change, fear of letting go, fear of being in control, fear of allowing, fear of forgiveness, and fear of unworthiness.

Oftentimes we have fear stored in the excesses of our bodies. Fear can be lingering in the fat cells, as well as in the toxins that are still being held in our systems. The wild weeds support our bodies' ability to detoxify these toxins out of our systems. They help us release pent up stresses and worries that we no longer need to carry. The chlorophyll in the wild edible weeds chemically binds to toxins, and through the elimination system are removed from the body. Every wild green that we eat contributes to our body's overall future efficiency. By eating the wild greens today, we feel a sense of freedom along with immediate energy. However, the effects are accumulative and can be noticed a day or two later in the form of a spacious and expansive sense of peace, inspiration, and contentment. When we open to the feeling of trust, which is one form of currency in nature's economy, chronic fear dissipates. Even if there is only a little bit of food out in the wild at any given time, we can know, and deeply trust that it is enough.

Take a Wild Walkabout

To this day, I continue to find my greatest sense of place and connection when I take my personal walkabouts several times each year. I usually have a destination in mind that takes me on a journey anywhere from a few days to multiple weeks. Sometimes I just take a full-circle journey and arrive back home refreshed. I keep my pack light by bringing only a simple tarp for rain shelter, sleeping bag and pad, some warm clothes, and a water bottle. I feast on what is available on my wild journey. I drink from the creeks and sleep under the stars unless it is raining.

Wild weed salad greens at 10,000 feet

I allow my first two to three days of the journey to be an integration time. It takes me about this amount of time to let go of the civilized frequencies, the chaotic pace and pressures of society. During the first days of the integration period, I let myself rest deeply, release emotions, and settle in. After about the third day, the harmonizing frequency of nature permeates my being and I begin to sustain myself on the blissful experience of interconnectivity. I open to the knowing that everything is communicating with me! I find that these times of solitude—reflecting, singing, praying, and communing with the wildland I call home—is what keeps me centered and fine-tuned. Although I am not eating a large quantity of food, what I am eating is at its peak of life force energy and high vibration. I do nothing to alter it from its natural state. I eat like a wild animal. Just pick, open mouth, and chew. Because of the simplicity and purity of the food and water I am ingesting, I experience unusually high energy levels that allow me to not only hike long days, but to also climb 13,000- to 14,000-foot mountains along the way. Every step I take deepens my sense of trust and peace. This time refills my soul until I overflow with gratitude and unconditional love for all. After a while, my body starts humming in harmony with the song of the Earth.

Hiking the final pass to Telluride

Feast on Gratitude

There are times during my treks when the berries are very few and far between and, yet, I find that my energy sustains. Part of the secret I am discovering is that I also feast on gratitude. I may not find a large amount of food, but even when only one wild strawberry shows up in my path, I am deeply and ecstatically grateful for it. This feeling nourishes me far more than even the berry. My walking journeys are rooted in a state of steady trust infused with peak moments of gratitude for all that is being offered to me along my way. Nourishment comes in so many forms. The sun gives us energy; the living vital water flowing in streams is also a powerful source of energy. Just being around the bubbling creek recharges our batteries. Breathing the fresh mountain air provides unending energy. The Earth itself contributes large amounts of energy to our bodies, especially when we can walk barefoot on the Earth, sleep on the ground, and connect our bodies to it often. Lying on the Earth is also a good way to decompress and drain the excessive tension and toxic effects from technological exposure. The Earth is a conduit and a grounding force that draws out the unbalanced frequency

patterns of modern technology and brings us back into the healing energy of the Earth's vibration.

My personal experiences have shown me that eating the wild foods around me wherever I am opens a window for feeling a deep connection and a primal joy for simply being alive. We can all become part of this integral wisdom. When we ingest living wild sources of food, we experience an ecstasy that cannot be found in a package. The primal life force sings out, loud and clear, and reminds us who we are.

I Am Alive to Life

I'm dancing in the woods all by myself
Barefoot on the forest ground
I lay on the Earth and drink her up
Charge my battery and fill my cup

And I am alive to life

I spiral in on my inward breath
Spiral out as I exhale
I breathe in what the thistle knows
I draw from the sky and flow through my toes

And I am alive to life

I wake up in the early morning
Eat the sunrise for breakfast
I sleep outside whenever I can
Under the stars who are my best friends

And I am alive to life

I drink my water straight from the creek
It's alive just like me
I eat outside like a wild animal
Right from land, no spoon or a bowl

And I am alive to life

I love to walk on the mountainside
Loving all beings and freeing my mind
I nibble on the weeds all day long
It is them that inspires me to sing this song

And I am alive to life

Energy comes in a thousand ways
When we open and receive it in
Remember who we really are
Is bigger than the brightest star

And we are alive to life!
And we are alive to life!

Become a Wild Human Being

To eat like a wild animal is a way of life. It is a human culture that is coming back into importance with the rise of foraging, gleaning, and eating locally. The closer we imitate our wild ancestors or other wild species that are currently living on the planet with us the more we can sustain our precious resources and live in humble alignment with the rest of life. Each animal uses only what it needs to survive, eats simply from the local area, and processes the food minimally—which maintains its integrity far beyond what we normally experience as a human in modern society. The closer we imitate the wildlife living in our regions, the more we experience harmony with all of life. When we eat wild, local, and living foods, we gain superior energy and efficiency. We utilize far less resources from the planet and from our bodies for digestion, and tap into a universal joy and interconnectivity.

Wild harvest

What is it like to be a wild human being in this modern day? How can we sustain our wild roots even as we are part of the system that keeps us domesticated? We can become revolutionaries who eat our wild weeds growing locally around us. We can align with the wild abundance of our backyards and alleyways. Nourishing ourselves from local wild foods inspires us to take the time to go outside to wild places, or to our neighborhoods where wild weeds are growing. When we make the effort to go out and gather food, we are brought toward greater harmony with nature's rhythms. Our harvesting time can be deeply energizing via connections made with outside life forces such as the sun, the wind, the birds, and all the other beings that are present during our time in the elements.

It is exciting to witness where the trends of nourishing ourselves from the wild side will evolve. I see it evolving into a greater collective desire and grace in how we care for our planet Earth and all her natural resources. I see that by developing these relationships with the wild weeds outside our homes, we begin to care more deeply for all our fellow humans across the globe in every culture. I see a gentle shift of deeper integrity and mindfulness in how we consume, disturb, and grow in our concept of progress. Perhaps when what we eat is our wild Earth, we will care deeply for the health of our home in every action we take as a human global

community. I offer a prayer that by eating our weeds, may we participate in a revolution of quality of life for all beings!

We gain human nobility by ingesting the wild weeds growing in the cracks of civilization. We can gain optimal health from the free source of nutrients, of medicines, and of amazing foods. To harvest the wisdom of the wild weeds is a revolutionary act of resilience, of rebellion, of genius, and of kindness to the Earth and our bodies. It is our birthright.

A Glimpse of My Wild Walkabouts: The San Juan Mountains, Summer of 2013

I begin my wild food journey just outside of Durango in early August when the berries are ripe. My mom's last words as she drops me off at the trailhead are, "Have a great time at church." She knows; going to the woods for me is about communing with the nature of the universe. This year my journey leads me to Telluride to teach at the Telluride Mushroom Festival, covers 90 miles, and takes seven days.

I walk at a harvester's pace, taking a few steps, nibbling along the way, and often wandering off the trail for the choice berries. I make up time by moving fast when the land is sparse of edibles. Luckily my pack is light, containing only the basics such as a sleeping bag, tarp, rain gear, and warm clothes. I leave at home the food, stove, filter, and cutlery.

I carry a water bottle and refill at creeks I pass. I started drinking unfiltered water after many years of eating wild food. At one point I questioned my fear of wild water and began sipping from streams at high elevations with aerated white water. I gradually increased my intake until now my main water at home is unfiltered creek water.

The first two days are transitional and I experience a kind of detox. I go through moments of feeling lonely, hungry, cold, and tired. Civilized life is stimulating and it takes me time to align with the frequency of nature. Knowing this period is part of my journey helps me not take my emotions seriously, otherwise I might hijack my plans. I take breaks as often as I need.

I awake to the morning sunlight feeling renewed and surrender into a trusting space of the unknown. By day three I remember that I love what I am doing and relax more deeply into listening to the symphony of the

Earth around me. After packing up camp, I spot a beautiful dandelion flower. I pick the stem at the base and try playing it as a flute; it doesn't play, so I pop the flower into my mouth.

My next feast is a bouquet of bluebells near the water. As I hike I chew on osha greens. They taste like celery and create a mouth-tingling sensation that cleans my mouth of bacteria. I gather plantain seed stalks growing on the edges of a dirt road for my staple food for the day. I eat the seeds when they are green and brown. For dinner I eat flowers: harebells, mustard, fireweed, clover, and bluebells.

Today I feast on hundreds of strawberries. I have a hard time hiking because the patches keep coming. I also indulge on three different species of gooseberries and discover a special treat of a few bilberries. I find two prime king bolete mushrooms and eat them raw. The stems are so juicy because of all the rain. I lick some fresh sap off a tree recently struck by lightning. I give the tree my appreciation and love. As I move through the forest, spontaneous songs emerge and become mantras for my journey.

This afternoon I enjoy the subtle licorice flavor of sweet cicely and roseroot—a high alpine succulent that in the past I didn't prefer, but which now pleases my palate. When I bring salty crackers or sweet bars, the flavors of the wild plants don't taste as good in comparison. When I am only eating what's here, the flavors come alive.

One morning I rise before sunrise and come upon a herd of elk resting in a meadow. I attempt to sneak past them, but they catch my movements and disperse into the forest. Later a young bear lopes toward me 20 feet down on the lower trail of a switchback. He sees me and disappears into the bushes. After wearing the same wool T-shirt for five days, I lay it out to dry after a rainstorm. I sit nearby journaling on a few scrap pieces of paper. In the meantime, a chipmunk eats a hole in my shirt the size of a large pancake. The salts from my sweat are too tempting. This reminds me how nature is such a resilient opportunist.

My days continue with long miles and multiple mountain passes to cross. The berries are few and far in between and I have to keep moving to make the passes before the storms prevent my travels. As I travel, I find myself meditating on the question, "Where do we get our energy from?" I realize I gain energy from so many sources like doing what I love, breathing, laying on the Earth, sunrises and sunsets, swimming in

cold water, and gratitude.

My coworker from Turtle Lake Refuge joins me on the final day and a half of my journey and we make our way over the last passes and drop into the Telluride valley. We harvest a bounty of mushrooms, berries, and greens to share at the festival. Although I will miss the spaciousness of the wild time, I am excited to visit the farmers' market for a local peach and to reembrace the charm of civilization.

Part Two

THE WILD THIRTEEN

AMARANTH

May amaranth help create intimate community with our human and nonhuman relationships.

“Amaranth is high in protein,
Eat them for muscles like Mr. Clean!”

Amaranth

Family: Amaranthaceae

Latin Name: *Amaranthus retroflexus* (*Amaranthus* means everlasting, unfading flower and *retroflexus* means reflexed or bent)

Related Useful Species: *Amaranthus lividus, A. spinosus, A. viridis, A. caudatus, A. cruentus, A. powelli,* and *A. hypochondriacus*

Global Common Names: English (pigweed, wild beet amaranth, redroot, love-lies-bleeding, prince's feather); Aztec (huautli); Spanish (amaranto, bledo, alegria); French (amarante); German (amarant); Italian (amaranto commune); Danish (papegaaienkruid); Portuguese (caruru); South American Andes (kiwicha); Hebrew (yarbuz mufshal); Chinese (fan zhi xian); Indonesia (bayam); Philippine (kalunay); Hindi (chaulai, katemath, rahgira, mamdana, keerai); Sanskrit (tanduliyah); Vietnam (rauden); Africa (mchicha [Swalhili], doodo [Uganda], terere [Meru]); Caribbean (bhaji); Jamaica (callaloo); Greece (vlita); Sri Lanka (koora thampala); Fiji (choraiya bhaji); Finnish (vihrea revonhanta); Norwegian (duskamarant); Swedish (svinamarant); Russian (shchiritsa); Polish (szartat szorstki); Japanese (ao geitou, aobyu); Thai (phak khom); Hopi (kono)

Description

There are close to seventy species of amaranth worldwide, ranging in sizes, colors, and shapes—all with edible and medicinal properties. *Amaranthus retroflexus* is one of the most common wild amaranth species found across the majority of the globe. It is an annual herbaceous plant able to reseed itself exceptionally well. Amaranth grows in a diversity of environments ranging from dry terrains of the desert to lush areas of the tropics. Although it will grow vigorously with copious water, it can still produce a seed crop even without precipitation for over a month. On Hopi land on the Second Mesa in Arizona where the rainfall averages around 9 inches a year, amaranth still thrives. In June the average rainfall is 0.23 inches when most of these plants are young shoots. As droughtlike conditions are becoming more prevalent in some areas, an increasing number of corn and wheat harvests are struggling; however, amaranth—both wild and cultivated varieties—continues to prosper.

Amaranth

When amaranth is young, its first two leaves have a reddish hue, which helps to identify them from other spring shoots. Often the top of the leaf is greener and the underside of the leaf has shades of red. Some varieties, however, have leaves that are completely red with tones of purple even as they age. The leaves grow in an alternate pattern on the stem and are broad, ovate to lance-shaped, and with simple wavy margins. The leaves have prominent veins both running down the middle and branching out to the edges. The leaves become smaller as they travel up the flower stalk.

Young amaranth plants

The whole plant can attain a height of between 2 and 5 feet, although

some varieties grow even taller. In *The Guinness Book of World Records* one amaranth is recorded growing 27 feet, 10 inches. The stems stand tall and characteristically stout and erect, often tinted red with a red stripe continuing down to the branching taproot.

Amaranth flowers are very delicate and beautiful and referred to as inflorescences, which describes an arrangement of blossoms on the flowering stalk. The flowers are greenish white and tightly packed in clusters at the end of the stem. They are pollinated by the wind, which assures that a diversity of genetic material will be transferred through cross-pollination. The spiked flower head maintains an erect shape throughout the season and becomes increasingly prickly with age due to the bracts encasing the flower and seeds. The flowering stalks are elegant while developing and maintain their beauty even when dried.

Amaranth seed head • Photo courtesy of Kurt Blair

The seed head becomes ripe when the plant starts to turn brown. They mature from the bottom of the flower spike up to the top. The wild seeds are tiny, black, round, and shiny; there are as many as fifty thousand to two hundred thousand seeds on one plant. Each seed is encased in a fibrous capsule and released when mature. Other cultivated varieties of amaranth such as *A. hypochondriacus* have golden seeds. The love-lies-bleeding amaranth, *A. caudatus*, and prince's feather, *A. hypochondriacus*, are both considered natives of India and are cultivated as ornamentals because of their striking beauty. The flower heads are dark reddish purple and droop in beautiful clusters, adding a unique flair to flower arrangements. Dried amaranth stalks make good tinder to start a fire; the flower seed clusters have ample ventilation and flammable material.

The root of *A. retroflexus* is a reddish taproot that descends into the ground about 6 to 24 inches that is easy to harvest, especially after rains. Although amaranth is a taproot, its nature is to branch out and cover a wide area with its secondary root system, sometimes covering an area 12–24 inches wide. This is an essential survival technique to absorb as many nutrients from the soil as possible. Although it flourishes in fertile ground, it is quite capable of establishing its niche in neglected landscapes of disturbed soils all over the world.

Amaranth roots

Amaranth is a good student of nature and has close to perfected its reproduction skills. Several varieties, including *A. palmeri*, have self-adapted to become resistant to the herbicide glyphosate (Roundup). In addition to *A. palmeri*, nine other amaranth species are on the noxious weed lists of the United States and Canada including *A. albus*, *A. blitoides*, *A. hydridus*, *A. powellii*, *A. retroflexus*, *A. spinosus*, *A. tuberculatus*, and *A. viridis*.

I see a future that welcomes and aligns with the wild side of nature. I see our agricultural “culture” shift its practices from exclusively commercially grown cotton, soybean, wheat, and corn crops into an integration including amaranth and other beneficial wild crops. With the help of underground microbial networking activity of the mushroom kingdom, in particular the

oyster mushroom, *Pleurotus ostreatus*, the toxicity from the petrochemical poisons of herbicides can be cleaned up and broken down. Regardless of the poisons applied, amaranth, along with other adaptive wild plants, generally prevail in new niches each spring.

Current Uses

At the Turtle Lake Community Farm we allow our wild amaranth crop to grow and reseed itself each year. Given this natural sowing, we always have a large crop. It is truly a sustainable crop because there is no need to save the seeds, to work the ground—or to plant, water, or weed it. The only work required is for the harvest. Amaranth does the rest itself.

Greens for chips

When young amaranth plants grow where we want to plant new tomato starts, we harvest the greens for morning juices, dinner salads, sandwich fixings, and for adding to pesto and cheeses. In the late spring or early summer, the amaranth leaves are large and at their prime. The ideal stage of harvesting the greens is before they have gone to seed. Some are added fresh in dishes at the café, at home, and some we dry separately for adding to green powders. Another innovative use is to marinate and dry them in a special sauce to make green chips (see the recipes later in this chapter). After massaging the leaves in their marinade, we spread the flavorful leaves on

dehydrating sheets to dry overnight. In the morning they have transformed into delicious vegetable chips. If we don't devour the chips immediately, we sell them to the local natural food stores. Other wild leaves, like varieties of knotweed and Siberian elm, are often also added. These green chips are popular at the farmers' market and as an additional treat for our wild CSA program.

Our farm consists of 1 acre with many gardens in various shapes and sizes scattered throughout. We also have a large labyrinth garden that we often plant with the three sisters—corn, beans, and squash. The fourth sister, the wild and unruly one, is amaranth—which provides the greatest harvest consistently.

Four-sister labyrinth garden

We harvest our wild amaranth seeds in the late fall after the green plants have lost their vibrancy and are starting to turn brown. It is a community affair and the more hands, the merrier! We use gloves because the stalks become prickly as they mature. We break or cut the stalks into bundles and lay them on a tarp or in gunnysacks. Our neighbors and friends are invited to join us as we dance around crushing the stalks with our feet to encourage the seeds to fall out of the flower heads. The next step is to separate the dry stems and further rub any remaining seed heads until the chaff has mostly broken down. We sometimes pour the seeds through a fine screen, which

begins this process. We use both the wind and our breath to blow off the remaining chaff. The seeds are heavier and fall back into the bowl or container. We spend hours winnowing the seeds on lightly windy days. Winnowing is a fun social process that can be quite addicting. I find such gratification seeing the black seed cache grow increasingly larger as the day continues.

One method that I use, which has worked surprisingly well, is to fill my childhood yellow wagon with the seed mixture and leave it out for a day or two. The farm tends to have just enough steady but gentle wind to blow the chaff out of the wagon and leave the seeds remaining. I was so impressed the first time this happened by chance!

A delicious recipe that we have been providing for our local community in bulk for years is our spicy flaxseed amaranth cracker. It is one of our signature recipes that continue to be popular and sells out at the farmers' market and other venues (see recipe later in this chapter).

Social winnowing

The small seedlings are reddish and grow beautiful and delicious microgreens for enlivening salads. We grow microgreens year-round at Turtle Lake Refuge using natural lighting from windows and grow lights when necessary. We have primarily focused on sunflower greens, buckwheat

lettuce, pea shoots, and radish greens—but we are now experimenting with amaranth microgreens into our available varieties.

In Oaxaca, Mexico, amaranth is gaining popularity in fighting the country's problems with malnutrition and obesity. The amaranth seeds cultivated today are the same seeds of ancient times, including *A. caudatus*, *A. cruentus*, and *A. hypochondriacus.* An organization in Mexico called Puente a la Salud Comunitaria is helping to educate people of the benefits and to spread seeds of amaranth as a food crop. Its goal is to utilize amaranth in place of corn for Mexican staple recipes. The members distribute a recipe book and offer classes and seeds to farmers. Another nonprofit organization called Mexico Tierra de Amarantos is actively promoting amaranth reintegration into the diets of the Mexican people for health, weight loss, and improved nutrition. The Amaranth Institute (AI), based out of Columbia, Missouri, facilitates the exchange of information between those interested in amaranth growing, distributing, and educating. AI hosts an annual conference to share its benefits with worldwide participants. Amaranth is gaining momentum slowly and steadily, reclaiming its important position in the human diet. The wise leaders of our international communities are encouraging our global culture toward sustainable food crops.

Alina’s expert winnowing skills

History

Amaranth is primarily a wild plant but has several domesticated relatives that developed over six thousand years ago with the pre-Columbian peoples of South America. The Latin name, *Amaranthus*, means a flower that is everlasting and unfading. In many cultures across the globe, amaranth is associated with immortality and increased fertility. In ancient Greece a tradition of spreading amaranth flowers over the graves of the dead helped impart immortality to the soul. According to Homer, the ancient Greek poet

and author of the *Odyssey*, the Thessalonians wore crowns of amaranth during the burial of Achilles. The early Swiss peasants also appreciated it by making wreaths of amaranth for hanging over doors during Ascension Day.

In pre-Columbian times the Aztec and Incan civilizations living in the area of modern-day Mexico, Peru, and Guatemala considered amaranth a sacred and integral part of life. Over 80 percent of the protein in their diet came from this seed. The traditions and religious ceremonies largely centered on amaranth and the natural elements that created an abundant crop. Some of the rituals included fasting during multiday festivals and sculpting amaranth mixed with honey into figures to honor the animals, elements, and gods to pray for abundance and health for their communities. At the end of the festival, the people cut the figures into pieces and together they each ate a piece of the whole that represented a sacredness and renewal of life. It seems apparent that nature, food, and spirituality were intertwined as the root of their holistic and cultural perspective.

In 1517 Hernando Cortés landed in South America and by the 1530s the Spanish conquistadors had basically conquered the Aztec and Incan civilizations. To maintain dominance over the people, the existing amaranth fields were burned and growing it as a crop became illegal, with enforced punishment. Eliminating the culture's staple crop was also an attempt to exterminate their religious practices, which were considered pagan. Even though the roots of pagan religions come from an honoring of Earth-centered spirituality, the damage was done and the amaranth crop disappeared except in isolated regional pockets.

This pseudograin has also been an important crop in the Himalayas and other parts of Asia such as Tibet, Pakistan, China, Nepal, and India. It is known for its dense nutritional value and has been a cultivated crop for thousands of years; it continues to be integrated into culture and cuisine today. In India, where the seed may have originated, amaranth— known as "seed sent by God" or "King's seed"—has the names *rahgira*, *mamdana*, and *keerai*.

The Hopi Indians' name for amaranth is "kono," which refers to the Hopi Indian dye plant used not only as food but also for color derived from the liquid of boiled flower bracts; the two species used for dye are *A. cruentus* and *A. powelli.* The Hopi use the flower bracts to color their piki bread (high in salt and made from the ashes of the juniper tree) and to color their

cornbread red. Today, a natural coloring can still be made easily with amaranth by steeping the red bracts of the flowering stalk, the leaves, and stems from several of the deepest-red varieties. Soak the plants in warm water overnight and pour off the water. The red water is now ready to color any culinary dishes.

In Bolivia an alcoholic drink called *chicha* has been traditionally made from fermenting the amaranth seeds in water. The recipe can also be made from corn. The earlier method involved women chewing the starchy grains and using the amylolytic enzymes from their saliva to change the starch into fermentable sugars.

NASA selected amaranth seeds as part of the diet for the astronauts who completed the maiden voyage of the Atlantis space shuttle on October 3, 1985. The crew experimented with germinating it on board and made amaranth cookies while orbiting in space.

Edible Uses

Amaranth is a treasure of wealth offered freely from the Earth's bosom. Amaranth is a fabulous food and truly manna from heaven. The entire plant is edible—the tiny shoots, the green leaves, stems, seeds, and roots. The leaves and stems are delicious when young and even continue to be palatable when mature. The seeds are easy to harvest because they will fall out of the flowering stalk with just a small amount of prodding. It takes a good shaking or stomping of the stalk to get most of the seeds to fall out, and rubbing the seed head between your gloved hands will inspire the rest of the seeds to release.

The fresh greens are loaded with available nutrition for our bodies. Amaranth greens contain an exceptionally large amount of manganese and magnesium as well as high amounts of iron and phosphorus. The greens also contain generous amounts of calcium, zinc, selenium, and potassium. The greens nourish the body, with well over the needed vitamin E and vitamin B complex for healthy reproduction, which validates its tradition for being used for fertility.

In his book *The Art of Fermentation*, Sandor Katz writes about amaranth stems being made into a delicacy as a pickled vegetable in China. We have pickled the stems of chard and beet through a simple process of fermentation

in a quart jar with half a jar of water and half a jar of vinegar with a generous amount of salt and spices. This simple recipe does not need to be cooked. It is ready to eat in about two weeks. Amaranth stems can be prepared the same way. It is best to catch the amaranth plant prior to going to seed so the stems are at their most tender and juicy stage.

Popping amaranth (the white popped ones are ready to eat)

Both the amaranth greens and especially the seeds are good sources of protein. The seeds have 15 to 18 percent protein, making it a valuable food for anemia. Because the seeds contain no gluten they are recommended for people experiencing celiac disease. As a gluten-free ingredient, amaranth makes nourishing cereals and additions to breads, crackers, and porridge. The seeds are much more nourishing than any single grain. They are officially categorized as pseudograins because they are not part of the grass family such as wheat and rye. Amaranth seeds contain both the amino acid lysine, which other grains are lacking, and the amino acid methionine, which beans are lacking. They contain all eight essential amino acids, making amaranth seeds a complete protein. The seeds pop into tiny kernels, making miniature “popcorn,” by heating them on a dry cast-iron skillet. The popped amaranth is the main ingredient for the delicious *atole* drink, a traditional Mexican beverage. The popped amaranth can also be formed into energy-packed bars, which are traditionally called *alegria*, meaning “joy” in Mexico

(see atole and alegria bar recipes later in this chapter).

The seeds are nutritious when cooked but even more nutritious when they are sprouted. Several varieties of amaranth will only sprout if overwintered in cold temperatures. If you harvest them in the fall and bring them inside to a warm environment, they will miss this important step in their development process. Some amaranth seeds need to overwinter outside or be placed in the freezer. I learned from the experiments of my Native American friend, Itza, to place my sack of amaranth seeds in the freezer for at least three weeks for "curing."

The roots have a mild delicious flavor and can be prepared like any other vegetable. They can be added to thicken soups, steamed, roasted, and integrated into most recipes calling for potatoes or other vegetables. In countries such as Vietnam, China, and Nigeria amaranth roots are a traditional soup ingredient. When amaranth is in season, there is no shortage of its roots. The potatoes that may have been planted will not be ready to harvest for many months and yet the amaranth roots mature early. They may not be as big and meaty as potatoes, but they are easy to harvest and, being wild, are exceptionally high in nutrition. The leaves, roots, and seeds support our optimal health and creative soul passions, which give peace of mind and a sense of wealth.

Medical Actions

- Antianemic: reduces anemia
- Anti-inflammatory: reduces swelling and inflammation of the tissues
- Antidiarrheal: alleviates diarrhea
- Astringent: tightens, constricts, and tones while reducing secretions and discharges
- Tonic: restores or increases body tone

Medicinal Uses

Amaranth is well known for its longtime edible uses; however, its medicinal qualities are equally an ancient treasure. Amaranth is a gentle astringent and is fabulous for tightening tissues internally and externally. It makes an effective wash to beautify the face daily; to care for any skin irritations or acne, simply blend the fresh leaves with a little water, strain out the pulp,

and apply the juice to any area. Amaranth juice is recommended by traditional Chinese medicine for women to reduce excessive menstruation and to ease cramping. It is also beneficial for calming inflamed bowels, reducing diarrhea, and toning the colon walls. Amaranth's high iron content supports building healthy blood and regenerating platelets. Amaranth juice and the fresh greens in salad are particularly beneficial for anyone experiencing anemic symptoms.

Amaranth contains a high amount of magnesium, making it beneficial for relaxing blood vessels and alleviating migraine headaches. In addition to its soluble fiber content, amaranth is rich in unsaturated fatty acids, both of which contribute to lowering cholesterol. Amaranth is a rich source of flavonoids such as rutin, phenolic acids, gallic acid, vanillic acid, oleic acid, and linoleic acids. Plant flavonoids support health by helping to eliminate free radicals, preventing oxidation processes, and reducing inflammation. Partly due to the high flavonoids, amaranth is recommended for the prevention of cardiovascular disease by the Functional Food Center in Dallas, Texas.

Amaranth oil, extracted from the pressed seeds, contains a high content of plant sterols and squalene, known for supporting overall health. Amaranth oil is recommended for any digestive issues such as stomach ulcers, cardiovascular health, and reduction of cholesterol. In Japan squalene is called *samedawa*, which means "cure-all," and is sought after as a beneficial supplement. Squalene is being researched by scientists in the Department of Hematology and Oncology at the University of Toronto's hospital as a potential anticancer agent; the studies are demonstrating its success as a factor in inhibiting cancer cell growth.

Although scientific evidence is verifying the value of amaranth, I find that the best information for me personally comes from the inside out. When I ingest amaranth, I feel good in so many ways that are hard to describe. I find that when I listen deeply to my body's response to a given plant, I discover more about the effects of the plant than any outside source. This is the intuitive wisdom that originates with one's body and the plant itself. Amaranth reminds me that food can be our best medicine through preventing illness before it even develops. Here's a toast to amaranth as a food and medicine of the people!

Recipes

Amaranth Green Chips

1 gallon of amaranth greens
1 cup almonds (soaked)
1 red onion
1 tablespoon chili powder
1 tablespoon salt
2 tablespoons honey
2 tablespoons lemon juice
2 cups water

Place the amaranth greens in a bowl and grind the rest of the ingredients in a blender until smooth to make the sauce. Massage the amaranth leaves with the sauce until they are well covered with the sauce on both sides of the leaves. Lay out the leaves on a dehydrator sheet and dry until they become crispy chips.

Amaranth Popcorn

Using a hot, dry, cast-iron skillet, place ¼ cup of amaranth seeds on the hot surface. Shake vigorously while the amaranth is popping to prevent any of the kernels from burning. Enjoy this wild delicacy as is or sprinkle popped amaranth with salt or your favorite seasonings. You can also use the popped amaranth for other recipes such as atole and alegria bars (see recipes below).

Amaranth Porridge

⅓ cup of amaranth seed
3 cups water

Boil for about half an hour until the water turns milky and thick. Serve with one teaspoon of honey, a dash of cinnamon, and a drizzle of mallow milk (see the mallow root milk recipe in the mallow chapter) if desired. For a true breakfast of champions, I would recommend starting with amaranth green juice and waiting twenty minutes before eating the porridge for optimal digestion.

Amaranth porridge

Amaranth Almond Root Stew

1 cup amaranth roots, chopped
3 cups mallow almond milk (make fresh if possible)
1–2 cloves garlic
3 tablespoons miso
1 cup fresh amaranth greens (cut into thin strips)
½ bell pepper, diced
½ cup celery, diced
½ cup carrot, shredded
1 teaspoon chili pepper
1 teaspoon dulse seaweed
¼ cup scallions, diced

Harvest the roots of five or more amaranth plants, using the tops for juice or salad. Use about 1 cup of amaranth roots. Wash the roots and dice into bite-size chunks. Separate half of the fresh roots and blend them with 3 cups of homemade almond milk, garlic cloves, and miso. Add 1 additional cup of

water if a thinner broth is desired. Add the rest of the chopped roots with 1 cup fresh sliced amaranth greens, ½ cup diced bell pepper, ½ cup diced celery stalks, ½ cup shredded carrots, 1 teaspoon chili pepper, 1 teaspoon dulse seaweed, and ¼ cup diced scallions.

Heat until warm and serve with a dash of olive oil, salt, and pepper to taste. The roots in this recipe can be exchanged for other roots such as burdock (*Arctium lappa*), a wild edible root that can also be found in international farmers' markets or health food stores, carrots, mallow, and dandelion root for an alternative seasonal delicious stew!

Amaranth almond root stew

Amaranth Spring Salad

2 cups fresh young amaranth greens
1 cup bok choy or another variety of mustard greens
½ cup each carrot shreds, cucumber shreds, sliced tomato
1 tablespoon black sesame seeds

Dressing

2 tablespoons olive oil
½ lemon, juiced
½ avocado
1 scallion, greens and root
1 tablespoon honey
1 teaspoon salt

Blend the dressing thoroughly and drizzle over the salad. Garnish with amaranth microgreens and sesame seeds. Enjoy the wild taste of nutrition!

Amaranth spring salad

Spicy Flaxseed Amaranth Cracker

1 pound flaxseed, soaked
3 tablespoons amaranth
9 cups water (approximately)
1-inch piece fresh ginger
2–3 cloves garlic
1 tablespoon chili powder

1 tablespoon salt
¼ teaspoon cayenne pepper or
¼ cup fresh local chili pepper

Soak amaranth and flaxseeds by adding twice as much water as seeds to a container. Once flaxseeds and amaranth have been soaked for eight hours, blend in small batches by adding 2 cups of seed mixture with 3 cups of water until the seeds are used up. Pour mixture into a large pot. Blend all the spices with a small amount of water, and mix in with the rest of the flaxseed and amaranth. Using a large spoon, lay mixture on dehydrator trays on a teflex sheet in circle shapes and dry for approximately 8 hours or until the crackers are crisp.

Sprouted Amaranth Alegria Bars

¼ cup sprouted amaranth seeds (see sprouting instructions in Chapter 2)
1 cup sprouted sunflower seeds
1 cup sprouted pumpkin seeds
1 cup sprouted sesame seeds
2 tablespoons raw cacao powder
3 tablespoons raw honey

Mix all ingredients together and shape into bars. Dehydrate either in the sun for a day or in the dehydrator for several hours until firm. Enjoy this living raw treat as a snack on adventures in the wild. You can also make this bar by toasting the amaranth in a dry skillet and then adding raw, unsprouted, lightly ground sunflower and pumpkin seeds. Although sprouting the seeds brings a higher energy to the bars, toasting them is another way to make the recipe in a very short time so as to have it available when you need it and to bring a unique flavor into the recipe.

Amaranth Green Juice

2 cups amaranth leaves
4 cups water
1 apple

Blend until smooth and strain to drink as a clear juice or enjoy the mixture with its pulp and thicken it into a smoothie drink by adding one or two

bananas.

Amaranth Orange Julius

- 3 cups amaranth greens
- 4 cups water
- 2 oranges, peeled and deseeded
- 1 teaspoon vanilla
- 1 tablespoon honey (optional)

Blend well and strain the pulp. Add an optional 1–2 tablespoons of honey for a sweeter frothy experience.

Amaranth Aztec Atole

- ½ cup popped amaranth
- 1 tablespoon raw cacao powder
- 1 tablespoon molasses
- 1 tablespoon honey
- 1 cup nut milk

I use a homemade coconut/hazelnut milk made with 1 cup shredded coconut and ½ cup hazelnuts (ideally soaked first for better digestibility) blended with 1 cup water. To do this, blend thoroughly and strain the pulp with a kitchen metal strainer or a cloth nut bag. Then add the strained nut milk to a blender with all other ingredients and blend until smooth. Serve this drink hot or cold with a dash of cinnamon on top if desired.

CHICKWEED

May chickweed empower each of us to live out our soul passions.

"Chickweed is high in vitamin C,
Delicate and yummy and tasty in your tummy"

Chickweed

Family: Caryophyllaceae

Latin Name: *Stellaria media* (*Stellaria* is translated as star and *media* means "in the middle of")

Related Useful Species: Star chickweed (*Stellaria purbera*), mouse-ear chickweed (*Cerastium vulgatum*), *S. dicholoma*, *S. alsine*

Global Common Names: English (chickweed, starweed); Spanish (pamplina); French (mouron des oiseaux); German (volelmiere); Chinese (yin chai hu); Finnish (pihatahtimo); Italian (budelina); Japanese (hakobe)

Description

Chickweed is a delicate perennial herb that also behaves as an annual and spreads by reseeding. It has a stringy flexible stem with petite leaves. The stems benefit from the support of other plants or objects. It can be found growing as a ground cover or in clusters in the middle of many other plants, creating a beautiful airy tangled mass as it matures through the growing season. Chickweed can reach a height of 1–2 feet in maturity, but generally does not have the integrity of strength to stand up erect by itself once it grows past a certain age. Chickweed's nature is to recline on neighboring plants to support its upright position, otherwise it can be found growing low to the ground in an intertwined weaving. Chickweed reminds us that we need each other. It is an asset to be interdependent with our neighbors and family members. This creates collective strength! We all have our own unique strengths and weaknesses and, by collaborating, we all win in the long run.

Chickweed

The small leaves grow in opposite pairs along the stem. They have simple smooth margins in an oval shape. A unique trait of chickweed is that on the stem there is a fine line of hairs that grow only on one side, switching sides at each leaf pair all the way up the stalk. The leaves usually grow less than ½ inch long and ¼ inch wide. Like the whole plant the leaves are delicate and bruise easily.

The flowers have five petals and are white and elegantly beautiful. Each flower petal comes to a point at the end away from the center. They look like perfect stars. Each petal is deeply divided—so much so that it has the nickname “mouse ears” because each petal looks like a pair of ears. The flower petals appear as though there are ten when in actuality there are only five.

The fruit is an oval-shaped pod that contains many reddish-brown seeds. They are slightly flat and roundish with a wrinkly texture. Each parent plant can produce 2,500 seeds that remain viable to sprout for over forty years. Chickweed’s root has a main shallow taproot with fibrous branching roots reaching out in all directions and growing into an underground mass interconnected with other roots.

Star chickweed flowers

Chickweed is commonly found in grassy areas, on the edges of gardens and pathways, and growing in a group clustered among other plants. It can handle very cold conditions and even flower under 10–20 inches of snow. Chickweed prefers moist conditions and can wilt and die back given a drought; however, when the next rain shower or water source becomes available the plants will bounce back and reseed or regrow from their roots.

Alpine chickweed

Current Uses

Chickweed is one of my favorite springtime green vegetables. The taste of it connects me to my core priorities of what is important, and it reminds me to appreciate the simple beauty of life. It is a delicious ingredient to add to almost any recipe. It is a great plant to take the place of lettuce when it is young and first growing in the early season for daily salads. The flavor is mild, clean, and refreshing. The fresh greens and stems also make a delicious green juice.

Chickweed is a plant dedicated to enhancing our beauty when we integrate it into our daily life. It is a regenerating herb that is gentle acting and yet clear in its healing abilities—toning the skin, reducing weight, and removing excess toxins.

I love to use chickweed in homemade salves, oils, poultices, lotions, teas, and juices to enliven my body's internal and external complexion. Chickweed makes a wonderful healing poultice by simply chewing up the greens into a pulp and placing the green goo on any skin blemishes to assist healing. Chickweed is also very regenerating for sunburns and sun spots. Chickweed has a cooling nature and when made into a poultice decreases the heat and constriction of an area while speeding up the body's natural healing.

I received a large bag of chickweed last fall from a student, which was truly an act of kindness and generosity because chickweed is valuable here in the drier regions of southwestern Colorado. She discovered a particularly large stash of chickweed growing underneath an air-conditioning coolant box. The water dripping from above made the chickweed patch thrive there more than anywhere around town. She gathered a grocery bag as a gift for me, and I was thrilled to have fresh green chickweed in late October. I ate the leaves fresh, made a poultice of them for my skin, blended up some for juice in my bath, and dried the rest to make chickweed salve.

Chickweed oil

I dried the chickweed on a screen in the shade to make chickweed oil to share with her and others. After a month of steeping the dried leaves in olive oil, I strained out the chickweed plant fibers through cheesecloth and stored the oil in a glass jar. We used it in our Living Soil program to make a healing salve by adding beeswax and essential oil in class later in the winter. Chickweed oil and salve is known for its amazing ability to gently but

steadily eliminate growths or cysts from the body and heal any skin sensitivities.

Recently I was involved in a fund-raiser for promoting the continuation of elders sharing their oral traditions of plant medicine. The event was in the month of December. I was asked to give a talk about the wealth of our weeds. As I walked over to the event, I noticed that there was a patch of chickweed that was partially covered in ice and frozen stiff. The chickweed was still perfectly green and succulent. I harvested some of the incredible delicacy for my presentation and shared nature's gift, still growing all around us even in the middle of winter. As we were having a mild snow year, I was able to find the plants because they were not completely buried in snow. The chickweed plants were still vital, bright green, and full of life force even though they were growing slowly. That day, prior to my talk, I was able to harvest almost all of the thirteen wild weeds covered in this book. Two of the thirteen I brought in already dried and stored, but the rest I collected outside that day in a variety of forms including the roots, seeds, and greens.

History

Chickweed found one of its original homes in Eurasia and traveled to new lands by settlers, birds, wind, and water. Many birds love to eat chickweed seeds, one of their staple foods, and this certainly helped contribute to chickweed's migration to new territories by spreading and fertilizing the seeds with their poop. Chickweed seeds are extremely resilient and pass through the digestive system of many small birds and animals. The seeds have been found in cattle, deer, horse, pig, and earthworm castings. Chickweed can even stay viable after being submerged in seawater.

The Ainu people, an indigenous tribe who lived in the northern region of Japan now known as Hokkaido, considered chickweed to be the original hair of the first humans. Chickweed grows across the land in many places as a ground cover, like lush green hair covering the Earth.

Chickweed growing in Finland

Traditional Chinese medicine values chickweed as an important medicine and has for many centuries. It is considered sweet, cool, and moist and especially useful in wound healing.

In astrological terms, chickweed is ruled by the Moon. Chickweed's flower is white and dainty and only comes into view for a short period of time, similar to the Moon. Chickweed can help predict weather because it is known to close its flowers before a rain.

Edible Uses

The flavor of chickweed is pure spring vitality that tastes like green sunshine. It shares an aliveness that encourages us to wake up into our full potential. Chickweed is loaded with vitamin C and antioxidants, making it especially useful for sustaining the high vibrational charge needed for optimal health. When we include fresh chickweed in our diet, we embody an

ease of strength within. Each of us has a vibrational spin that sometimes goes fast and steady like a spinning top—and other times, when our immune system is low, slows down and wobbles. When we ingest wild plants in their pristine state of aliveness, our personal frequency aligns with the plants' vibration, helping us repel sickness and fatigue. Given our fast-paced technologically consumed lifestyles of modern times, the wild plant's frequency is likely much higher than our own. When we eat the wild plants our vibrational spin increases in steadiness and speed, inspiring a life of simple happiness and clarity.

Chickweed is truly one of the most wonderful wild edible salad greens. It is plentiful, mild in flavor, and delicately succulent. It gives me such delight when I am in the right place at the right time and there is a bounty of young spring chickweed to harvest. It is a joyful practice to go outside, gather the fresh greens to add as the bulk of my salad, and enjoy its enlivening flavor bursting with vitamins. Chickweed is also an easy addition for energizing a variety of recipes. I appreciate it as the main green ingredient in my morning green juices. In the early season you can use the whole upper parts of chickweed including the stems, leaves, and flowers. As chickweed matures in age it can get a bit fibrous, so harvest from the upper leaves of the plant for making salads. The older and lower stems can still be collected to make a green juice if blended and then strained. Harvesting is like giving a patch of chickweed a crew-cut hairdo. Their hair grows back from their roots and when we harvest with appreciation chickweed will continue to produce a bounty year after year.

Be cautious when harvesting chickweed that you do not accidentally include other plants that you may not want to ingest. Because chickweed grows in a mass cluster, it is important to be very aware of what you are harvesting. In some regions, poison hemlock grows alongside and in the chickweed patches. Always double-check your harvest by separating each plant when you prepare it into food to assure you only have what you want. There are a few look-alikes to chickweed to watch out for. The scarlet pimpernel (*Anagallis avensis*) is also low growing with opposing leaves, but has a purple-scarlet flower and does not have the fine hairs on one side of the stem like chickweed.

Chickweed rock garden

Chickweed is a valuable source of vitamins and minerals including chlorophyll, gamma-linolenic acid, and beta-carotene. It is rich in vitamins C, A, D, B6, and B12 complex such as niacin, riboflavin, and thiamin—while also being exceptionally high in iron, calcium, potassium, phosphorus, zinc, manganese, copper, selenium, and silica.

Chickweed produces a large amount of seeds in the later summer and early fall season. The seeds are made up of 17 percent protein and 5.9 percent fat. The seeds take about six weeks to ripen from the sprouting plant. The flowers will generally set seeds and ripen attached to the stems. The seeds spill out below the mother plant. One way to harvest the seeds is to gather the stalks already mature with seeds and place the plants to dry in a paper bag. The seeds can then be separated when ready to use. They can be eaten raw, ground into cereals, and added to flours for making bread. Even gathering a few for adding to other seed or grain recipes will increase the nutrition levels of the meal.

Medical Actions

- Digestive: aids digestion of food
- Diuretic: increases the flow of urine and secretions
- Expectorant: removes mucus from respiratory passages
- Stimulant: quickens action of physiological processes
- Antirheumatic: reduces rheumatic symptoms

- Astringent: tightens, constricts, and tones while reducing secretions and discharges
- Carminative: either prevents or expels the formation of gas in gastrointestinal tract
- Demulcent: forms a soothing film over mucous membranes, relieving minor pain or inflammation by drawing out toxins
- Depurative: reduces impurities or heterogeneous material
- Menagogue: promotes menstrual discharge
- Galactogogue: promotes lactation
- Ophthalmic: aids in draining the eye or structures near the eye
- Febrifuge: reduces fever
- Vulnerary: treats or heals wounds

Medicinal Uses

Chickweed is a demulcent herb that gently soothes and draws toxins out of the body. It is a gentle but powerful healing agent in its fresh form. When the leaves can be harvested locally and made into juices or poultices, chickweed supports the repair of skin, tissues, and organs. The healing force of chickweed can be used for a range of complaints. Chickweed contains the compounds of triterpene saponins, hentiacontanol, coumarins, mucilage, phytosterols, tocopherols, flavonoids (apigenin C-glycosides and rutin), and organic carboxylic acids.

The fresh crushed chickweed leaves make a healing poultice for bruises and burns, cuts, external inflammation, skin irritations, and insect bites. Chickweed has a refrigerant nature and reduces inflammation and heating ailments by cooling down the tissues. It is such a valuable healer that it is wise to harvest extra before the season is complete and dry it for winter use.

Eating chickweed in its fresh form helps remove congestion and infection that may be stored in the body. The fresh juice and the tea from the upper leaves and stems assist with eliminating gas and indigestion. The rich chlorophyll found in chickweed, in addition to other properties, makes it good for dissolving and breaking down inferior proteins in the body (such as tumors). This happens most effectively when the fresh juice is used consistently. Throughout the season, I recommend rotating the various greens used for making daily green juices. Each unique plant offers a

diversity of minerals and vitamins for the body. By switching the specific kind of green used on a regular basis, we have access to a rainbow of nutrients to choose from to regenerate and maintain an optimal state of vitality.

The tincture from the fresh plant is good to use as needed through the winter months when the fresh greens are not outside. The tincture supports releasing congestion and internal excesses. Chickweed makes fabulous healing oils and salves from the dried greens for nurturing the skin. The oil is very soothing for relieving itching and clearing up skin outbreaks such as rashes and pimples. Chickweed contains saponin, a substance that creates a subtle, foaming, soapy quality. Plant saponins help dissolve excesses in our body that we do not need, such as mucus, bacteria, undigested proteins, and fat cells. The saponins assist our bodies in becoming more efficient by assimilating and eliminating unwanted tissues, including cysts and lumps.

Recipes

Cream over Chickweed Greens

1 lemon, juiced
1 tablespoon honey
1 teaspoon dried oregano or 1 tablespoon fresh oregano
1 tablespoon tahini
2 tablespoons white miso
½ cup water
1 avocado
Bowl of chickweed greens and other wild, local, and fresh greens available to you, such as wild violet greens, miner lettuce, and young dock greens

Blend all ingredients except for the greens in a blender until smooth and creamy. Drizzle the dressing onto the bowl of greens and enjoy this nourishing meal of wildness.

Chickweed salad fixings

Pomegranate Chickweed Pesto

- 2 cups chickweed
- 2 cups basil
- 2 cups French sorrel or very young and tender dock leaves
- 2 cloves garlic
- 1 lemon, juiced
- 1 teaspoon salt
- ½ cup pine nuts
- 2 tablespoons olive oil
- 1 cup pomegranate seeds
- ~ 4 tablespoons water (you may need to add more until it reaches the right texture)

Blend all ingredients (except pomegranate seeds) in a blender and serve over zucchini linguini made by spiraling the fresh zucchini in a spiral slicer. Sprinkle the pomegranate seeds over the dish before serving.

Pomegranate chickweed pesto

Chickweed Casserole

Crust

2 cups oats
2 cups sunflower seeds
1 teaspoon salt
1 teaspoon caraway seeds
2 tablespoons water

Filling

Seed cheese
1 avocado
2 tomatoes, diced
1 cup chickweed greens, diced

Grind the crust ingredients into a fine flour and add just enough water to form into a dough. Shape the dough into a casserole dish. Layer in the cheese and slice in the avocados. Sprinkle the diced tomatoes and chickweed over the top. Serve fresh at room temperature, or warm in a dehydrator or oven for fifteen minutes—making sure to not cook the goodness out of it.

Chickweed Cucumber Cooler

1 cup fresh chickweed
1 cucumber

1 apple
Sprig of fresh mint
4 cups water

On a hot day when you need a cooling break to soften the tension and recharge your matrix, let chickweed support your journey in rebalancing. Blend all the ingredients in the blender and strain out the pulp. Sip on this elixir with some deep full breaths of appreciation.

Chickweed Oil

16 ounce jar of dried chickweed greens
Oil to completely cover the dried chickweed

Pack the jar with dried chickweed. Cover the dried greens with oil of your choice. I use unrefined organic coconut oil or organic olive oil. If you use coconut oil, you must keep the jar in a warm place or the oil will solidify and not extract the beneficial qualities of the chickweed as readily. Store at room temperature for two weeks, shaking regularly.

When ready, strain out the chickweed and bottle the oil for enhancing your beauty.

Chickweed Salve

1 cup chickweed oil
⅛ cup beeswax
2 tablespoons shea butter or cocoa butter
8–10 drops of essential oil of lavender

In a double boiler so as to prevent burning or cooking the oils, add the chickweed oil, the beeswax, shea butter or cocoa butter, and essential oil of lavender and warm until all ingredients have melted together. Stir well and pour into your desired containers to cool.

I use this salve as a body beautifying agent to heal cuts and skin irritations, and soften wrinkles and skin blemishes such as sun spots. I also rub it on any cuts or sores. It is a fantastic massage salve for lumps that show up in the body. It helps break them down and eliminate them from the body.

CLOVER

May clover enhance our connection to the all-loving source of the universe.

“The three leaf clover has roots so deep,
Pulls up minerals from a hundred feet.
When you eat that clover flower and leaf,
It builds our bones and strengthens our teeth.”

Clover

Family: Fabaceae

Latin Name: *Trifolium pretense* (*Trifolium* means three leaves and *pretense* means found in meadows)

Related Useful Species: Alfalfa (*Medicago sativa*), white Dutch clover (*Trifolium repens*), alpine clover (*T. alpinum*), black medic *(T. medica*), sweet yellow clover (*Melilotus officinalis*), sweet white clover (*M. albus*)

Global Common Names: English (clover); Hindi (tripatra, tipatiya); Aztec (ocoxchitl); Spanish (trebol); French (trefle); German (dreiblattriges kleeblatt); Japanese (tsumekusa)

Description

Red clover (*Trifolium pretense*) is a perennial plant with the classic oval-shaped three leaves of the shamrock. If you have a lucky nature you may discover clovers with four or more leaves. My aunt Margie always seemed to have the special eye for finding the four-leaf clover in grassy areas. When she did, her wishes came true. One of her wishes even helped seed Turtle Lake Refuge's beginnings!

Red clover

A distinctive feature on the leaf of red clover is a whitish V-shaped spot in the middle called a chevron. The leaves are generally soft in texture, most often without hairs, and have tiny jagged edges outlining each leaf. Red clover grows approximately 1 foot high from a base of leaf rosettes that can spray out in all directions.

Red clover produces an almost circular flower cluster made up of many bilaterally symmetrical individual flowers. The flowers are delicate and tube shaped with five inconsistently shaped petals. The two upper petals, called the keel, are fused together and are longer than the two bottom ones, called the wings. The fifth petal is the largest and is called the banner. The flowers are pink, lightly red, or whitish. There are no leaves on the flowering stalk.

The fruit is a pod containing seeds that spill out when ripe. The seeds of red clover are light brown, small, and bean shaped. The roots are taproots that are well equipped to aerate the soil and break up compaction from disturbances such as overgrazing. The whole family of clover contains nitrogen-fixing bacteria on their roots that support the fertilization of other plants such as grass, fruit trees, and garden vegetables.

White clover (*Trifolium repens*) has deep taproots that form into an underground creeping rhizome, which sprouts up new plants from along the rootstock. The white clover can grow into a small colony of plants, whereas the red clover grows only one plant from one taproot.

White clover with incoming bee

Another commonly found clover in grassy areas and lawns is the black medic (*Trifolium medica*). It grows low to the ground and has small yellow flowers that form small ball-like clusters that mature into fruit pods. The stems branch in many directions with leaves growing alternately along them. When the fruit is ripe it produces bean-shaped edible seeds.

Black medic clover

Alfalfa, sweet yellow clover, and sweet white clover grow considerably taller, up to 3–4 feet. They all have the classic clover three leaves with tiny jagged edges and, although their leaves are subtly different at close inspection, the best way to identify the different species is from the flowers. Alfalfa clover has purple flowers, while the others have yellow and white flowers, respectively.

The clovers are also a great source of pollen and nectar, attracting foraging bees and other wild pollinators and insects. Since clover is fertilized by insects, the flowers are sweet smelling and tasting to assure they come in for a visit.

Current Uses

The whole part of the clover is edible; however, there is an optimal season for its best harvest. It is an extremely nutritive plant available to humans in a very concentrated form. It is so powerful that only a small amount is needed to gain its benefits. Alfalfa roots can reach as deep as 150 feet, which allows them to bring up minerals that are not commonly available in the standard diet.

Each stand of clover is unique depending on where it is growing. It is key to taste each plant before harvesting any quantity because the soil, moisture level, age, and species all make a difference in the flavor. Let your body tell you if it is agreeable to you. If you experience a burning sensation in the mouth, that is your sign you have had enough. Many varieties of clover such as alfalfa and sweet yellow clover become too potent and bitter as they age. Other clovers, however, are sometimes palatable even in older stages of growth such as the white Dutch clover, red clover, and black medic clover. The mildest year-round clover is the black medic. The Dutch white clover is also mild flavored and found commonly in lawns and grassy areas, and is used often as a living mulch in organic farms and gardens. Red clover leaves can be delicious when young but can often become too potent with age. Their reddish purple flower, however, is delicious when blooming—even if later in the season.

Clover is a rich source of pollen. Gather the flowers and toss them into your salads; flowers of clover are generally delicious even if the leaves have become too potent. Clovers are in the pea family and make an edible seed. Clover seeds are edible either by sprouting or cooking them to make the seed more digestible. The older leaves can develop potent compounds that may be too concentrated for eating or juicing, but are still useful for making tea.

Clover candy

It has become a tradition to go out and gather red clover flowers in the San Juan Mountains on my early summer mountain-climbing adventures. The beautiful pink flowers are at their prime in the high alpine mountains in June. They bloom profusely along the trails. The sweet flowers taste like candy and are the perfect trail snack. Once home I dry them on a big, flat wicker tray for three days in the shade. When they are dry and crisp, I store them in a glass jar for tea throughout the winter. Red clover is such a good friend, and gifts us the magic of the mountain once back at home.

Gathering the wild alfalfa seeds, a member of the clover family, is an enjoyable social event in the fall. Wild alfalfa grows in a 500-acre open field just beyond my house, making it a wonderful place to visit in the fall when the plants have all died back. The dead stalks of the alfalfa plants are loaded with alfalfa seeds. I like to bring a handful of kids with me and we scour the open fields, gathering the little spirals off the dead alfalfa stalks and releasing the tiny alfalfa seeds into our hands. The collected seeds can later be germinated into tasty wild alfalfa sprouts.

History

Red clover is native to central Asia, Africa, and most of Europe. It is now

naturalized in Australia and North America. It has been an important forage crop in North America, South America, Europe, Australia, the Middle East, South Africa, and many other regions in the world. In the pagan traditions of the fifth century, red clover was revered for its many beneficial uses in medicine and food. Carrying clover near the body offered protective powers and encouraged prosperity. The four-leaf clover has been used over the ages as a lucky charm. The traditional Irish shamrock of St. Patrick's Day honors the magic and charm of the clover for bringing the renewal of spring. It is associated with the Holy Trinity as a connection to God and all that is good.

An Iron Age man unearthed was found with clover seeds in his stomach, demonstrating that clover was used as a staple food in prehistoric times. Ancient Chinese and Indian physicians used young alfalfa leaves to treat digestive disorders. In traditional Chinese medicine, red clover historically is used to help clean the blood, clear heat, and remove toxins.

Many Native American tribes integrated many types of clover and alfalfa into their lifestyles. They are known to have used alfalfa to stop bleeding, treat jaundice, as a toning drink for health, to support digestion, to assist with anemia and lack of appetite, and for overall assimilation of nutrients.

Traditional people of European countries dried the leaves of clover to give a vanilla-like flavor to foods. When dried, the flowers of white clover make a delicious addition to breads and desserts. Sweet white clover is one of the most aromatic of all the clovers and, if placed in drawers, adds a pleasant aroma to stored clothes.

Prior to World War II, sweet clover was an important green manure crop. Its ability to grow rapidly and fix nitrogen in the soil made it an ideal green manure in gardening and agriculture. Interest in sweet clover for green manure dwindled rapidly after World War II when commercial fertilizers became readily available, but it is still used in ecological farming. Sweet clover increases the nitrogen content in the soil best when it is plowed under and is allowed to compost. The roots contain nitrogen-fixing bacteria that support other plants like grass, fruit trees, and garden vegetables. Clover is encouraged as a companion plant to grass. In earlier days clover and grass were commonly sold together for lawns as a free source of fertilization. Not only does clover give nutrition to the grass, the soil, and the microorganisms, but it also gives an immense amount of nutrition to the human body.

Edible Uses

The clovers are part of the legume family and create a complete protein when combined with grains. The sprouted clover seeds make a wonderful vital addition to sandwiches, salads, and other recipes. Adding the leaves and flowers of sweet white clover to recipes creates a vanilla-like flavor.

Alfalfa leaves drying for tea

Clover is packed with nutrients and minerals and helps the body recharge after a winter's diet lacking in wild greens. In the very early spring, clover is one of the first plants to emerge. In general the first young green shoots that emerge after the cold of winter are the most palatable. But even with the mildest greens gathered in the early season, it is still wise to use the leaves in moderation. Use your tongue to test each plot of clover that you harvest. Very quickly you will know how much you want to add to your salads or green juices. After the season has progressed for some weeks, the leaves may shift into their more potent stage. I find when they are no longer tasty on my tongue I move them from my salad plate to the teapot.

After the clover leaves have become too strong to eat in any quantity, another wonderful use for them is to blend them up with water into a potent green juice and, instead of drinking it, use it as a hair conditioner. The clover

is loaded with minerals that the hair and scalp benefit from even if the juice is unpalatable. This same juice works well as a body wash and bathwater addition for cleansing and beautifying.

The flowers of clover are sweet and mild in comparison with the leaves. The flowers make great additions to salads and dishes, adding nutrition to the meal without changing the flavor of the recipe. In general clover flowers taste sweet like honey and are rich in pollen. I love to eat them right off the plant when I am hiking and collect some for adding to dishes. The flowers harvested in their prime stage can be dried to make a delicious tea. Make sure to dry the flowers thoroughly to avoid any potential mold after storing.

The leaves and flowers of clover are especially high in magnesium and calcium, which are essential for efficient muscles and healthy functioning of all bodily processes—especially for the conceiving mother. The leaves are rich in beta-carotene, vitamin C, vitamin E, most of the B vitamins, biotin, chromium, niacin, tryptophan, phosphorus, potassium, thiamine, choline, inositol, bioflavonoids, and isoflavones.

There are some important precautions to know when gathering clovers. If the leaves are wilted or damaged or look sick in any way, do not gather them. It is best to only gather the fresh flowers when they are in their optimal stage of flowering. When they begin to wither there is a risk of an alkaloid called slaframine building up, which is potentially toxic. In particular, sweet white clover should be used with caution for fermented recipes. A substance called coumarin, which is responsible for the sweet vanilla-like odor, can change into dicoumarin during the process of wilting, molding, or rotting. Dicoumarin can interfere with the metabolism and synthesis of vitamin K, which is necessary for the clotting of blood.

Harvesting any plant requires a level of mindfulness and clovers are no different. The key is to harvest fresh, healthy plants, dry them thoroughly, and store in watertight containers and avoid molding. Then the clover can gift us by replenishing our bodies with ample minerals and vitamins.

Medical Actions

- Alterative: improves overall health due to quality nutrition
- Antispasmodic: relaxes smooth muscle spasms
- Antibacterial: inhibits the growth of bacteria

- Aperient: acts as a mild laxative
- Diuretic: increases the flow of urine and secretions
- Expectorant: promotes drainage of mucus from the lungs
- Relaxant: promotes relaxation of muscle and skeletal tissues

Medicinal Uses

Red clover is a relaxant and expectorant. The dried flower tea is very calming and helps relieve asthma and lung issues. It helps ease and sooth coughing, from the common cold to bronchitis. The flower tea is good for ridding the body of internal inflammation and infection. It contains phenolic glycosides, making the tea also a useful wash for healing skin problems such as eczema and psoriasis.

Red clover is an exceptional herb for women. It can increase the amount of estrogen in a woman's body. The flower and leaf tea can reduce hot flashes and other symptoms caused by menopause. The isoflavonoids present in clover give a protective effect to the lumbar spine and increase bone density. The high amounts of calcium and magnesium enable the body to remineralize, accelerating healing and strengthening bones and teeth. According to herbalist and author Susun Weed, drinking red clover tea during pregnancy supports in toning the uterus and muscles and mineralizing both the mother's body and the developing child's body.

Research on the role of isoflavones from red clover demonstrates cancer prevention, inhibiting cancer cells from growing in test tubes. The red clover contributes to shrinking cancerous tumors by preventing growth of new blood vessels that feed tumors. Using a tea as a wash can encourage tumors to open out to the surface and heal. Internally the tea is used in the treatment of eliminating tumors, growths, and lymphatic system problems.

The fresh flower poultice is good for ridding one of athlete's foot as well as any insect bites or stings. The fresh flower as a poultice is also beneficial for burns, rashes, and other skin irritations such as acne or eczema. The dried flower tea makes a good wash for the same problems. An external poultice of the leaves and flowers is good to ease inflammation and infection, including rheumatism.

Recipes

Clover Sprout Cookies

½ cup clover sprouts (see sprouting instructions in Chapter 2)
½ cup sprouted sunflower seeds
2 apples
1 cup dates, pitted
½ cup almonds
Pulp from clover pineapple-aide (see following recipe)
½ cup clover flowers

Grind all ingredients in a food processor until well mixed. If you do not have the juicy pulp from the clover pineapple-aide, you may need to add a little water. Keep dough firm but still malleable enough to shape into cookies. They are ready as soon as you are. Enjoy these lucky clover cookies for later adventures by wrapping them individually and storing in the refrigerator.

Clover Sprout Casserole

Crust

1 cup oats
1 cup buckwheat groats
1 teaspoon salt
1 tablespoon oregano
2 tablespoons olive oil

Filling

1 cup cashews
¼ cup scallions
1 lemon, juiced
1 clove garlic
1 teaspoon salt
Water if necessary to create a smooth texture

Toppings

1 avocado
2 tomatoes
½ cup sliced mushrooms

½ cup clover flowers

1 cup clover sprouts

Grind the dry crust ingredients in the food processor until fine, and add in the oil to form the dough. Press into a pie pan. Add the filling ingredients into the food processor and mix until smooth. Layer onto the crust. Slice the topping onto the filling and sprinkle the clover flowers over the clover sprouts to complete the meal with wild magic and beauty.

Clover Flower Flaxseed Crackers

4 cups flaxseeds, soaked
6 cups water (or as much needed to process flaxseed)
2 cups coconut flakes
½ cup clover flowers
½ cup mild clover leaves
1 tablespoon salt
¼ teaspoon cayenne pepper
1 teaspoon curry
1 teaspoon cumin

Blend the soaked flaxseeds with the water until broken down, although not long enough to stress your blender. Use the water as needed. Add into the batter the rest of the ingredients and mix well. The texture should be slightly thicker than pancake batter. Pour 3-inch circles onto dehydrator sheets until it all is used up. Dry for eight hours or until crispy. These crackers keep well for extended periods if stored in a dry cool place.

Clover Flower Apple Pie

Crust

2 cups pecans
2 cups dates

Filling

4–6 apples
1 tablespoon cinnamon
1 lemon, juiced

Toppings

½ cup clover flowers

Grind the pecans and dates in the food processor until they reach a doughy consistency. Press into a pie pan. Add the rest of the ingredients to the food processor except the clover flowers and grind until smooth. Add this filling to the crust and garnish with the clover flowers for a beautiful dessert to share with friends and family. Not only is this raw pie fast and easy to make, the wild clover offers abundant nutrients pulled up from the Earth to support living our path of service and joy.

Clover Sun-Dried Tomato Bisque

2 cups figs, soaked in water for an hour minimum
1 cup sun-dried tomatoes, soaked in water for an hour minimum
1 orange, juiced
1 avocado
1 tablespoon orange zest
1 teaspoon salt
½ cup mild-flavored young clover leaves

Use the soak water from the figs and tomatoes to blend the rest of the ingredients until creamy. This makes a wonderful cold soup if desired or it can be warmed slightly and served immediately.

Clover Pineapple-aide

½ cup mild clover greens
1 cucumber
1 cup ripe pineapple
½ cup purslane
3 cups water

Blend all ingredients in a blender, strain out the pulp, and serve! The pulp can be used to make clover sprout cookies (see previous recipe).

Clover Sun Tea

1 tablespoon dried clover flowers
1 tablespoon dried clover leaves

1 tablespoon hibiscus flowers
Sprig of fresh mint

Place the herbs in a quart glass jar, fill up with water, and set in full sun for four hours. Enjoy this wonderful tea chilled after a good day’s work doing what you love.

DANDELION

May dandelions support joyful living embodied in primal optimal health.

“The whole of the dandelion is a wonderful food
A little bitter little sweet puts you in the mood
Play the stems into singing flute
Make your coffee from the roasted root”

Dandelion

Family: Asteraceae

Latin Name: *Taraxacum officinale* (from the Greeks, meaning “the official remedy for all disorders”; in Latin, *taraxos* means “disorders” and *akos* means “remedy” while *officinale* means “official” and “from the pharmacy”)

Related Useful Species: White-flowering Japanese dandelion (*Taraxacum albidum*), California endangered dandelion (*T. californicum*), Asian dandelion (*T. japonicum*), Russian rubber dandelion (*T. kok-saghyz*)

Global Common Names: English (dandelion); Spanish (diente de leon); French (dent-de-lion); Japanese (tampopo); Welsh (dant y llew); Catalan (dent de leo); German (lowezahn); Danish (lovetand); Portuguese (dente de leao); Italian (diente di leone); Norwegian (lovetann)

Description

Every part of the dandelion is a reason to celebrate. Its whole being is incredibly beautiful, useful, edible, and medicinal! Its bright yellow flower opens and closes with the sun and is often the first flower of spring attracting the pollinators to venture out of their winter hibernation. The honeybee loves the dandelion flower. I understand why because when you eat it fresh off the stem, it is sweet and tastes like pollen and honey!

Dandelion

Dandelion has dark green leaves that are distinctively jagged like a lion's teeth. One of its early names in French is *dent de lion*, the tooth of the lion. They are thinner at the base and significantly broaden as they reach outward. They all grow from the basal root; you will not find dandelion leaves growing up a flowering stalk. The leaves radiate outward from the central taproot, and the jagged toothy nature of its leaf edge is very irregular and whimsical (or haphazard). They grow in lengths from about 6 inches to a full hand long. When the monsoon rains in our region begin, the leaves can be found in special lush places growing as big as two or even three hands high.

The dandelion greens increase our body's mineral supply due to the root's deep underground taproot. The main root is brown with white flesh just inside the skin and branches into smaller fingers spreading underground. The smaller rootlets penetrate new ground while absorbing a rainbow of trace minerals from the soil's resources into the whole plant. With age both the stems and the roots secrete a sticky white sap that has many uses for beauty

and health. The plants often exude this milky white sap when broken.

A Dandelion Ditty

Dandelion you're so pretty, let me tell you about it in this Dandelion Ditty

Today the magic of the dandelion flower
Offers its grace for personal power
Power in the sense of freedom
Freedom from the practice of weeding them
Weed them why when they are so pretty
Let me tell you about it in the Dandelion Ditty

When you pick them
You've got to play them or eat them
But promise me that you'll never ever spray them
When you harvest these spring greens
There are so many things to do that are so keen

You can make that yellow petal wine
And that's a surefire way to have a good time
Put their dark green leaves in your dinner salad
That's how I came to write this dandelion ballad

Their roots dried and ground make a mighty fine drink
A good morning bitter chai, don't you think?
And the best thing about our local dandelion
Is you don't have to go to the store to buy them

So remember to love your dandelion friends
It's a perfect way to help our world to mend
By honoring their yellow beauty
We'll have clean air, healthy kids, and honeybees in our community
Yes, clean air, healthy kids, and honeybees in our community

Dandelion you're so pretty, let me tell you about it in this Dandelion Ditty

The flowers are bright yellow and emerge from the center of basal leaves. They grow at the end of stems and first emerge as small tight buds, the plant attaining 6–24 inches in height. The flower stalks are hollow and the longer ones can be sculptured into a great flute and straw! Many flowers can emerge from one root but each flower grows on its own stem. One bright yellow dandelion flower is actually composed of hundreds of individual flowers all maturing to seed to create the white magical puffball so common in fairy tales, making wishes come true.

Enamored by the dandelions

These white puffball heads fly in the air when blown by the wind and the seeds are readily carried across lands and oceans. There are fluffy umbrella-like ends attached to the heavier thin and pointy seeds, which not only help lodge them in the soil but which are also is useful for hitchhiking on animal fur or human clothes.

The reason wishes come true is because the wind carries your wish on each seed to every shore of every ocean, sharing your desire with the whole

world. And rightly so, as dandelions are found prolifically on every continent, except Antarctica because it is still over 98 percent ice. However, the islands just off the coast of Antarctica have dandelions flowering each spring! The dandelion knows how to survive because it can easily reproduce from both its seed and its root. It is a perennial plant that returns each year from the same root. If you try to dig up dandelions, they can regrow from even a small part of the root left in the ground. This is a marvelous example of nature working in the currency of abundance. This golden plant shares so much generosity in beauty, health, and happiness year after year for the good of all.

Current Uses

We make great use of this hardy wild plant at Turtle Lake Refuge. We use dandelions year-round by utilizing the greens, roots, and flowers for a myriad of recipes that are served at our café and sold in local stores. In the spring, summer, and fall, we use it fresh from the gardens for making juice, pesto, and even ice cream. In the late fall, we gather the big leaves in quantity and dry them. Once dried, we grind them into a green powder for use in recipes throughout the winter months.

Dandelion Festival

As a way to promote weed appreciation within our community in early May, Turtle Lake Refuge hosts a fun celebration called the Dandelion Festival. It has now become an annual event. In the day-long festival there are dandelion wine–making workshops; a May pole dance; dandelion medicinal workshops; dandelion ice cream; dandelion lemonade; dandelion pesto with zucchini linguini; and great local music, dances, and games throughout the day of festivities. For the school kids in town we host a dandelion drawing contest and the chosen winners get a prize of either a dandelion ice cream cone or blending their own dandelion lemonade on the bicycle blender. Our mascot is a big papier-mâché lion, named Mr. Dande Lion, that receives bundles of love from all the kids who paint and decorate him with fresh dandelion flowers each year.

Leo's getting a facelift (left); Mr. Dande Lion (right)

One of the highlights for the adults is Dandelion Saison, or dandelion beer. Four local breweries collectively called the Bootleggers Society collaborate on making this special springtime batch of local brew. Turtle Lake Refuge harvests the dandelion roots, leaves, stems, and flowers to be used in the process and the Bootleggers make the beer for the festival. This year we harvested 20 pounds of dandelion roots after a spring snowstorm from one of the city's organic parks. The greens and roots pulled out easily once the snow melted by midday. The bitterness gives the beer a special kick. Although drinking alcohol can be hard on the liver, the dandelion in the beer may offer some healing properties to the liver at the same time, perhaps helping balance it all out.

The hollow stems of the taller dandelions make amazing musical flutes! To choose a dandelion stem that works, pick the stem carefully and pop off the flower head. Blow into the stem to make sure it makes a noise like a kazoo. Then cut small holes in the stem just big enough for each finger to cover. I use my Swiss army knife scissors or my fingernails to create holes for each finger. It will play as many different notes as holes. Place your fingers on the holes and play the notes of the scale and make exquisite music. It is an art that takes some skill, but once you get the gist of it, the music that flows out brings smiles to every face. Our spontaneous band, Dandelion Octet, consists of eight people—all with dandelion flutes, performing as the opening act of the annual event.

Dandelion Flute Octet

Dandelions are celebrated in the spring throughout the world. In addition to our local Dandelion Festival in Durango, Colorado, there are dandelion festivals in Boulder and Denver, and a myriad of other festivals happening around the world in honor of the springtime yellow flower such as in Zeeland and Borculo, the Netherlands; North Greenwall, Ontario; Wallace, Nova Scotia; and Japan (called the Tampopo Festival). In Canada there are a plethora of dandelion celebrations in cities such as Halifax, Stratford, Waterloo, and Ottawa. Across the United States dandelion festivals are happening in the Napa Valley, California; White Sulphur Springs, West Virginia; Dover, Ohio; Burlington, Vermont; Mount Calvary, Wisconsin; Waukegan, Illinois; and Vineland, New Jersey—just to mention a few.

The numerous annual festivals celebrate and highlight the dandelion by creating all varieties of foods and beverages made from the whole plant. A common theme that runs throughout most of these events worldwide is the support of organic land stewardship practices and the desire to change the toxic herbicide spraying practices in parks and wildland maintenance programs.

The dandelion is recognized as a worldwide symbol of organic lawns. A quote from West Virginia's Dandelion Festival speaks of this resiliency to overcome: "In celebration and appreciation for the determination of the dandelion, the gutsy little flower fights its way through velvety lawns, dodges mowers and weed killers. And against all odds, dandelion reigns supreme as it blankets our village each spring. We salute you, our West Virginia Dandelion!"

Another reason to celebrate dandelions is that they are in partnership with gardens and fruit trees. Year after year these perennials build an ongoing root networking system, increasing soil integrity. Dandelions ensure that the soil beneath the gardens and fruit trees is aerated and mineralized. The deep dandelion taproots maintain a loose and spacious soil structure that enables earthworms to compost leaf debris. The dandelion absorbs minerals such as calcium, iron, and potassium from the Earth into its leaves and ultimately into the topsoil when they are composted each year. The produce and fruits all benefit from this natural fertilizer and the added natural mulch, which over time creates a rich humus layer of easily accessible nutrients.

Another studied phenomena of the dandelion and garden/fruit tree collaboration is that dandelions are known to produce ethylene gas. This is beneficial in assisting the ripening of the fruit. Dandelions also make great chicken food, and if there are dandelions at the base of fruit trees free-roaming chickens will forage for the dandelion greens while scratching and pooping around the trees. This extra nitrogen is highly beneficial for fruit production.

The spring dandelion flowers often bloom before the fruit trees and draw beneficial insects, such as ladybugs and honeybees, to begin pollinating the early blooms in the gardens and orchards. The apricots and cherries are usually the first to risk exposing their flowers to the early fluctuating temperatures, with peaches, pears, and apples following. After the dandelions mature beyond the flowering stage, the bees naturally shift all their focus to the flowering nectar of the gardens and orchards.

History

Dandelions have been used as a spring tonic since before the written word. Some of the first dandelion-related written text comes from Roman times. Anglo-Saxon tribes of Britain and the Normans of France described the healing properties of dandelion before the time of Christ. Pliny the Elder published his last and possibly greatest work, *Naturalis Historia*, in 77 AD —a thirty-seven-book masterpiece on subjects including the remarkable healing properties of the dandelion. In Chinese medical literature, dandelion is a strong force utilized for its health benefits—for possibly over five thousand years, but recorded in writing in 659 AD. In the tenth and eleventh

centuries the dandelion was mentioned by Arabian physicians in their medicinal practices. In 1932 in Kazakhstan a dandelion species, *Taraxacum kok-saghyz,* was found to create enough sap to produce rubber. The Russians, during World War II, perfected the process and made rubber latex from the white milky sap of this species. The United States later requested that this Russian species be sent for experiments in making a domestic rubber. Unfortunately the seeds from another species were sent and planted en masse; ultimately they never produced any quantity of latex and the project ceased. In 1957, the United States imported more than 100,000 pounds of dandelion root for use in pharmaceuticals.

In Japan, the dandelion has been used for medicine as well as food since early recorded history. More recently, in 1979, after extensive research with the dandelion, a patent was filed in Japan for a freeze-dried extract of dandelion roots for antitumor use. The roots are gathered, roasted, and boiled at low temperatures to make a root syrup. Even today this syrup is still available in a form called *yansen*. Roasted dandelion root coffee is popular in Japan, as well as in other parts of the world, and it is still made and sold regularly. Although it is most common to find yellow dandelion flowers, in 1909 a white dandelion, *Taraxacum albidum,* was found near Nagasaki, Japan, and sent to a scientist named Gustav Dahlstedt in Sweden—who cultivated it successfully and then published a famous article about dandelion healing and aesthetic benefits.

According to a number of texts, dandelion was brought to the North American continent as seeds in the pockets of the wise pioneers who knew that, in order to survive in unknown territory, this plant would be a provider of sustenance, offering all the basic nutrition they needed to live. Although I trust in the written history of these accounts, I also think about how the dandelion happens to grow on every other continent as well, and the simple fact that dandelion seeds are made to fly! They sail in the wind across large distances, they travel in the intestines of animals, on fur and wings, on driftwood—as well as in the pockets, shoes, and clothes of humans. It is the brilliant nature within the dandelion itself that brings these seeds to all continents. Our wise ancestors of the past—in addition to some of the modern people of today—know the potent value that the dandelion offers our species for survival. When the first beehives were imported to the Americas, dandelions were planted purposely to make sure the honeybee had

good forage for pollen and nectar. Dandelions have long been known across the globe for their nutritional superiority and for their ability to support human health and resiliency while adapting to challenging conditions.

Indigenous cultures around the globe have integrated dandelions into many of their health practices in the past and continue today. According to *American Indian Medicine* by Virgil J. Vogel, “Dandelions are referred as indigenous [plants] to most parts of the world.” He writes how the Mohegan steeped dandelion leaves for a strong physic and muscle tone. The Pillager Chippewa made tea of the roots for treating heartburn, while the Potawatomis prepared the roots into a bitter tonic. The Meskwakis utilized the dandelion root for a strong medicine and took it for pain in the chest when other remedies failed.

The Yoruba of Africa use dandelions as herbal medicine in their holistic perspective of healing that originated over four thousand years ago. The *osainista* of the Yoruba are expert herbalists and still integrate dandelions into their practices. The *osainista* traditionally and presently use dandelions to assist with the health of the womb, liver, and breast issues. The North American Papago tribe use dandelions in their heritage and still today integrate the local wild foods and medicines into their lifestyle.

Edible Uses

Dandelion is a storehouse of abundant nutritional value. This amazing common weed has everything that we need! The entire plant including the roots, stems, flowers, and leaves is all edible; if it was the only plant available, dandelion has everything required for humans to survive—especially if all the parts are eaten. Each part is composed of different amino acids, making the whole plant a complete protein. The flowers contain plentiful amounts of pollen for the bees to gather in the spring. Pollen is a highly nutrient-rich food for humans as well. It contains a vast array of B vitamins, proteins, amino acids, and trace minerals. Pollen is the sexual dust of the plant world and is known to promote fertility for all who partake in the magic yellow powder. The pollen of dandelion is included in the flower and can be added to recipes to thicken and increase the nutrient content of the meal.

Dandelion gold

As our palates adjust to the wild flavors of the Earth, our bodies begin to crave the stronger tastes present in the dandelion. Our taste buds over time begin to recognize the richness of trace minerals and vitamins found in wild plants. Although some may experience the leaves becoming too bitter later in the season, I have found dandelions to be delicious during all seasons and stages of growth. The flowers are lightly sweet and have a subtle taste like honey, while most of the rest of the plant is slightly bitter. The roots, while slightly bitter during the summer, become quite sweet in the winter months. The bitter taste of the dandelion can grow on your palate, especially when you know its value in creating healthy muscle tone in the body. Bitters, in general, tone our internal organs into a greater strength and stamina of function. Dandelions build beautiful and noble physics. This increased integrity of body structure is better apt to handle stresses, respond more quickly to challenges, and move with a more graceful flexibility. I remember my mother’s advice when I was a child trying a new food with an unfamiliar flavor; she encouraged me to “teach my tongue a lesson” and be open to a new adventure of taste.

The seed of the dandelion is another rich food source. The seeds are

packed with proteins, carbohydrates, and fats. The seeds make a good seed milk if you gather many stalks full of the white puffballs. When gathering the seeds for milk, I gently separate the seeds from the fluff with my fingers by clasping the white fluff in a pinch. The seeds break off easily. A simple dandelion seed milk recipe is to take a handful of the dandelion seeds and blend them in water with vanilla and dates. This makes a very nutritious morning meal. I sometimes add a banana or another seed or nut to thicken it.

By eating the whole dandelion flower, root, and leaves you receive a complete protein meal with more nutrition than you might otherwise ingest in a week of the typical store-bought diet. The beauty of this type of meal is that it is free, available anywhere, and creates no trash in the process! The available vitamin and mineral content from the whole plant is exceptionally high. Dandelion greens are extremely rich in chlorophyll and high in calcium, iron, vitamin A, and vitamin C in addition to a host of other substances. The flower heads are sweet and taste like a honey-flavored candy. The roots are a storehouse of an easily digestible sugar, insulin. Particularly in the off-season when the plant is not blooming, this sugar becomes a concentrated delicacy, especially in climates with cold winters. Dandelion is truly a survival food of royalty! It offers more than just survival to our bodies by supporting optimal health and planetary abundance.

Dandelions are classified as a “nutritive,” which helps replenish the blood with vital minerals and vitamins needed for the body’s long-term integrity. They balance the electrolytes in the system due to their natural sodium content. A serving size, 1 cup of fresh greens, has the daily requirements of beta-carotene, calcium, iron, and potassium. It contains more vitamin A than any other green. It contains approximately 7,000 units per ounce as compared to 1,200 for lettuce and 1,275 for carrots. Dandelions are great sources of magnesium, phosphorus, copper, sodium, choline, lecithin, biotin, and inositol. In addition to being a very good source of dietary fiber, it is rich in vitamin C, vitamin D, vitamin E (alpha tocopherol), zinc, and manganese. As a complete protein, dandelions contain all eight essential amino acids in addition to many of the B vitamins including B1 (thiamine), B2 (riboflavin), B5, B6, B9 (folate), and B12.

The green leaves contain significant amounts of pectin, a soluble fiber that prevents constipation. Dandelions accomplish this in part by their ability to encourage beneficial flora to thrive in the colon and inhibit unfriendly

bacteria. The greens also act as a digestive tonic assisting the breakdown of undigested proteins and fats. The bitter quality supports the secretion of bile and the digestive enzymes in the stomach. The green leaves can be blended as a daily springtime ritual with water to make a green juice that is best consumed twenty minutes before a meal to aid digestion.

The roots make a fabulous staple food that far surpasses the flavor and nutrition of a potato. They become particularly sweet with the onset of cold frosts. From late fall through the early spring season, dandelions move all the sugars of the plant downward and concentrate them in the roots for storage. At these times of year, the dandelion roots are especially delicious and are perfect for simply digging up and nibbling on right on the spot, as well as harvesting them for winter food storage. In addition to using them fresh, they can be frozen for later use, as well as dried and then rehydrated into soups. They also make a wonderful pickle relish. My friend Doug Simons, a wise and beautiful medicine man from the Gila Wilderness in Arizona, inspired me to make a dandelion relish simply by grinding my dandelion roots with apple cider vinegar, honey, and salt. It is ready to eat after a few days and will last almost indefinitely.

The roots are a good source of B12 when cultured into fermented sauerkraut. When you wash off the roots, it is impossible to get every speck of dirt off, but this is actually a good thing because of the microbial life present in the soil. The dirt left on the roots contains millions of wild regional microbial life-forms that get cultured into the kraut. This wild kraut gives the body a force of healthy microorganisms to support the immune system and natural flora of the colon. These wild microorganisms increase the efficiency of our body’s metabolic and elimination processes. The microorganisms found in the soil near your home are particularly beneficial because they are already adapted to your particular bioregion of Earth.

When dandelions are present, you can trust that there is plenty of nourishment to thrive! Luckily, wherever there are humans living, there are dandelions growing. This is one great solution to any form of malnutrition we may encounter globally. When we understand the amazing benefits of ingesting dandelions in our meals, it is easy to find ways to make them delicious to share with our friends and families. By making our food rich with the wisdom of the dandelion, the intrinsic medicinal values are integrated into our lifestyles as a bonus. This practice allows us to follow the

wise motto of Hippocrates—“Let food be thy medicine!” With the abundant dandelion as our storehouse of nutrition, we avoid additional medicine to fight any sicknesses because we rarely get sick!

Medical Actions

- Aperient: acts as a mild laxative
- Cholagogue: increases flow of bile from gallbladder into the duodenum
- Depurative: reduces impurities or heterogenous matter
- Diuretic: increases the flow of urine and secretions
- Galactagogue: stimulates the flow of mothers’ milk
- Hepatic: reduces congestion and drains the liver
- Stomachic: strengthens and tones the stomach
- Sedative: reduces anxiety, stress, irritability, or excitement
- Anti-inflammatory: reduces swelling and inflammation of the tissues

Medicinal Uses

Dandelion holds the title as the royalty of weeds. Its medicinal values are vast and extensive! In traditional Chinese medicine, dandelions, also known as *pu gong ying*, are an herb that cools the blood and dispels liver wind. It helps clear heat and toxicity that arises from excess fire in the body. It helps dissipate nodules, reduce abscesses, and impede lumps in the body. Dandelions are utilized as a blood cleanser, tonic, and digestive aid.

Dandelion root tea is one of my favorite morning beverages. I love to drink it dried and ground into a fine powder in a gourd with a maté straw. Eastern medicine encourages drinking dandelion root tea to assist circulation and to discharge stagnant energy blockages in the body.

Dandelion root “maté”

In ayurvedic medicine, originating from the Hindu religion in India around 1500 BC, dandelions (known as *kanphool*) are regarded as a bitter herb with sweet, pungent, and cooling energetics. They are used to detoxify *pitta* conditions, a body type described in the ayurvedic healing science as being an overheated imbalance. I am primarily of a *pitta* nature myself and notice the exceptional benefits from my morning ritual of sipping dried and ground dandelion root in hot water through my bombilla (metal straw) in a maté gourd each morning. Ayurveda also uses dandelions for eliminating cysts, swelling of the lymph nodes, and removing cholesterol from the body.

Dandelions are also beneficial for the condition of diabetes. They contain a source of levulin, which has the same composition as insulin and allows the liver to convert fructose into glycogen without requiring the body’s secretion of insulin. This creates less stress on the pancreas and maintains an even blood sugar level for optimal energy. In addition to improving the function of the pancreas, dandelions also support efficient functioning of the spleen, kidney, liver, and stomach through promoting blood circulation.

Dandelion is a rich source of chlorophyll. The body efficiently utilizes the chlorophyll content in the leaves for rebuilding the blood. The chemical structure of hemoglobin and chlorophyll are almost identical, with the main

difference being that hemoglobin contains iron whereas chlorophyll has magnesium. This gives the body the necessary nutrients to be able to prevent anemia. Dandelion leaves are a rich source of vitamin K, which helps eliminate the excessive buildup of acidic crystals that create the symptoms of gout. The high mineral content of the leaves also gives strength to the teeth and increases bone density in the body. Dental research conducted at Indiana University demonstrated how dandelions inhibit plaque buildup on the teeth, while the chlorophyll they contain helps eliminate bad breath at the same time.

Dandelions have an exceptionally high calcium and potassium content, which together build structural integrity in the body. The addition of these vital minerals makes the dandelion a savior in lessening muscle and menstrual cramps. The flowers and stems are rich in coumestrol, a plant estrogen that provides a balance to hormone fluctuation in women while also stimulating milk flow in nursing mothers.

My mom used dandelion as one of the greens in her process of eliminating the pain and congestion from rheumatoid arthritis. She was diagnosed with arthritis when she was seventeen, and followed a Western standard practice of medicine for twelve years. This included multiple surgeries and over ninety-five thousand medically prescribed pills with all their side effects. She did not see improvement in her arthritic condition during this time and, in fact, her mobility continued to degrade to the point where she could no longer walk. When I was two years old, she was inspired to juice fast. After about four days of drinking raw liquids, her joint pain and congestion disappeared almost totally. This experience was a huge epiphany for her and this led her on a whole new path of life. She was inspired to continue her education and earned a master’s degree in holistic nutrition. As a result of her experience, our family began the tradition of drinking green juices approximately twice a day. Dandelions and comfrey were two of the main greens we harvested from our backyard. At seventy-one my mom no longer has arthritis and her mobility has returned to active walking and even biking, rafting, playing the piano, and sledding!

Pat Blair, one of the elder turtles

Dandelions make a fantastic spring cleanse. I like to occasionally juice fast with the greens generously blended with a few other ingredients like apples or lemons for a length of about three days to a week to clear out any stagnation from the winter season. I begin this juice fast just after the spring rains, which brings the dormant dandelions back to life. The perfect time to bring the cleaning spirit of the dandelion into the body is when the leaves are vividly green and the flowers have yet to bloom. Although the dandelion juice can be combined with other ingredients, sometimes I like to feel the

pure essence of the dandelion during this time of purification and recharge. It is powerful way to welcome dandelions into the body as a healer and rejuvenator. If I experience a cooling sensation during this time of cleansing, I may integrate fresh ginger into my dandelion root tea as part of the cleanse to act as a heating influence and balance my internal temperature. Anytime I begin a fast, I always experience my internal body temperature as cooler. I have come to understand that it is a normal part of cleansing. The heat energy that comes from digesting food is not present and the energy within the body is being directed internally for deeper cleansing and detoxifying. During longer cleanses or lifestyle shifts in diets, the cooling sensation will cease and become regulated as the body adjusts to a new efficiency of digestion and elimination.

Dandelions are an especially powerful healing force for the liver. According to the American Nutraceutical Association, dandelions stimulate the secretion of bile and treat liver disorders. The root, in particular, stimulates the release of congestion in the liver leading to its improved functioning. Due to the beneficial support of the liver, dandelions are a well-documented remedy for hepatitis. Other conditions caused from congestion of the liver can be addressed through integrating dandelions in the diet. With the dandelion's help in purification of the liver, skin conditions improve and age spots dissipate. The milky sap from the stems and roots, when applied directly to the skin, helps to remove facial blemishes, warts, sun spots, moles, pimples, canker sores, and skin irritations. I have had several warts and sun blemishes successfully disappear after using this milky sap and plant poultices. When I am on solo walkabouts it is a perfect time to experiment because no one notices that I have strange plant matter attached to my body.

The whole plant is a healing diuretic, which aids the removal of toxins from the body into the urine. The dandelion is known as a sparing diuretic, which is one of the safest diuretics available to use because it contains such high levels of potassium. Many pharmaceutical diuretics deplete the body of potassium in the process of their diuretic function; dandelion actually increases the potassium levels in the body. Dandelions gently stimulate the mucous membranes, which helps draw out toxins from the bowel and soothe the digestive tract. Dandelions are particularly powerful because they oxygenate and purify the blood while alkalinizing the body. By reducing excess acidity, the body is able to regenerate cellular integrity more rapidly.

My friend Seven Song, an herbalist from Ithaca, New York, speaks a poetic truth with his comment, “Dandelion would be a rare plant if people knew its health potential.”

Recipes

Dandelion Pesto

2 cups fresh dandelion greens (optional—also add the pulp strained out from the dandelion juice recipe)
1 cup raw cashews
3 tablespoons lemon juice
3 cloves garlic
½ cup organic sunflower oil
1 cup basil or mixed garden herbs like French sorrel, mint, parsley, and oregano
1 cup water
1 teaspoon salt

Mix all the ingredients in the blender until it forms a creamy texture. This recipe can be used as a dip or a salad dressing and is delicious served over vegetable pastas made with raw zucchini, beets, or pumpkins. Enjoy the wild taste of your global spring dandelions!

Dandelion Quiche

Crust

1 cup raw buckwheat groats
1 cup sunflower seeds
1 teaspoon salt
1 tablespoon thyme
½ cup water

Filling

3 cups dandelion greens
1 cup tahini
1 lemon, juiced
1 teaspoon salt

Toppings

Avocado
Mixed herbs
Veggies (optional)

Make your crust by grinding the dry ingredients in the blender until it becomes fine flour. Place this flour in a bowl and add approximately ½ cup water until it gains a doughy consistency. Form the crust into a pie pan. Dehydrate for an hour or two if too wet.

Add the filling ingredients to the food processor and mix until creamy. Place filling in pie pan and decorate with avocados, fresh herbs, and veggies (if desired). Serve with a fresh mixed dandelion salad.

Dandy Candy

2 cups Turkish figs, soaked in water for one hour and destemmed
1 cup dandelion greens
½ cup cacao nibs
dandelion flower petals

Place all ingredients except petals into the food processor. With tablespoons of the mixture, form into cookie shapes, sprinkle with dandelion flower petals, and place on a plate in the freezer. They are ready to serve when firm. This simple and delicious candy is a great road trip treat. The raw cacao, the active enzymes, and liquid oxygen from the dandelion greens help keep you awake on journeys.

Dandelion Root Stew

1 cup fresh dandelion roots, shredded
2 tablespoons sweet white miso
1 avocado, diced
½ cup scallions, diced
1 cup fresh yellow squash, shredded
6 cups water
1 tablespoon fresh garden herbs

Add all ingredients to a pan. Warm lightly on the stove while stirring. Serve immediately for a wholesome, warm, local culinary specialty soup.

Cultured Root Sauerkraut

1 cup dandelion roots
1 medium cabbage
1 tablespoon salt
1 tablespoon caraway seeds
1 teaspoon juniper berries
1 tablespoon dulse seaweed

Grind the cabbage and dandelion roots in a food processor until lightly shredded. Place in a bowl and add the other ingredients. Mix well and pound mixture with a wooden dowel to bring out the juices. One simple way to make sauerkraut (that came from my culinary friend, farmer, and bread baker, Scott) is to pack the sauerkraut into a glass jar. Choose a jar that can be filled to the top and pack it tightly so that no air is present in the lower levels. Make sure that the juices come to the top of the jar when packing it in. Place a lid on the jar loosely so that juices can escape if they need to, but air is prevented from oxidizing the kraut. Put a plate under the jar and store the jar at room temperature. Another method to make cultured vegetables is to use the old, big leaves from the cabbage. Place them on top of the shredded vegetable mixture that is pressed tightly in a ceramic crock and place a weight on top to keep the oxygen out. A rock or a gallon jar of water works well. Cover the whole thing with a cloth and leave at room temperature for about one week. The smell of sauerkraut will let you know when it is ready. Enjoy the kraut on crackers with an avocado and store the remainder in the refrigerator. Culturing wild roots enhances the enzymatic activity of the food and encourages beneficial microorganisms from the soil to assist your body in greater digestion and colon health.

Dandelion Ice Cream

3 avocados
1 cup fresh dandelion greens or 1 tablespoon dried dandelion greens
2 lemons, juiced
3 cups water
1 cup honey

Blend all ingredients very thoroughly until creamy. The longer you blend the creamier it gets. Place the mixture in a metal bowl in the freezer and stir

every hour until it becomes ice cream! We serve our ice cream in homemade fruit leather cones made of bananas, figs, and cinnamon blended with water and dried overnight in circles.

Dandelion Juice

This can become a daily ritual of honoring your body and the planet.

- 2 cups fresh dandelions
- 4 cups water
- 1 apple (optional)

Blend all ingredients in the blender until well mixed. You can choose to either keep the pulp in the juice or, depending on your preference, strain out the pulp for a clear juice. If you strain the pulp, it can be added as a variation to other recipes like salad dressings or pesto. Drink the juice (as fresh as possible) twenty minutes before eating a meal for improved digestion.

Dandelion Lemonade

- 2 cups dandelion greens
- 2 lemons, juiced
- 2 tablespoons honey
- 4 cups water

Place all the ingredients into the blender and blend well. Strain out the pulp if desired and serve fresh over ice on a hot day!

Simple Dandelion Root Tea

To make tea, simply dig the roots, wash, chop into ½-inch pieces, and let dry for several days on a screen in the open air. Grind the roots in a coffee grinder into a fine powder and add hot water. This tea can become a morning ritual. I like to use a maté gourd for my cup with a straw that has a strainer at the end. This bitter morning brew is a divine organ tonic for the morning, offering a rainbow of minerals for the body's integrity and health.

Dandelion Spicy Chai Tea

- 1 cup almonds, soaked
- ½ cup dandelion root
- 1 teaspoon cloves

1 teaspoon coriander
1 teaspoon cardamom
1 teaspoon cinnamon stick
1 teaspoon black pepper (optional—for extra spice also add ¼ teaspoon cayenne pepper)
1 tablespoon ginger root
Honey to taste

Blend all ingredients in the blender until well mixed. Strain out the pulp with cheesecloth, a strainer, or a nut bag. I use a knee-high panty hose until it gets a run in it; then I replace it. You can heat up this chai tea, but I recommend stirring often so as not to let it boil. It is best with all the enzymes intact!

The Four-Root Grounding Tea

1 teaspoon turmeric root
1 teaspoon ginger root
1 teaspoon licorice root
1 teaspoon dandelion root

Steep together and infuse the day with a rooted grounded strength.

DOCK

May dock instill deep trust in our ability to survive and thrive in harmony on the land.

“Eat the dock greens when they’re tender and sour
Grind the seeds to make your own flour”

Dock

Family: Polygonaceae

Latin Name: *Rumex crispus* (the genus *Rumex* originally was called *Lapathum*, which means “purging,” and *crispus* means “curly,” “uneven,” or “twisted”)

Related Useful Species: French sorrel (*Rumex scutatus*), sheep’s sorrel (*R. acetosella*), common sorrel (*R. acetosa*), canaigra (*R. hymenosepalus*), broadleaf dock (*R. obtusifolius*), alpine dock (*R. alpinus*)

Global Common Names: English (dock, curly dock, yellow dock, butter dock); Spanish (legnua de vaca, vinagrillo, acedera crispada); French (patience crepu); German (krultongblaar); South African (labaca-crespa); Portuguese/Brazil (labaca, selvagem); Japanese (nagaba-gishi-gishi)

Description

Rumex is a genus containing over two hundred species that include the curly dock (*Rumex crispus*) as well as the garden varieties of sorrel, including French sorrel (*R. scutatus*). Dock is a perennial flowering plant that typically starts growing with a cluster of lower leaves, later sending an erect flowering stalk straight up 2–5 feet tall. There is a slight hint of red streaks commonly found on the stems. The leaves are generally bright green, although as they age they can develop a reddish tinge and marks on the leaves. The leaves grow large and fleshy near the ground in the basal rosette and then decrease in size and grow in an alternating pattern as they move up the flowering stalk. The leaf margins are smooth and wavy and the shape of the leaf is oblong to lance-shaped. The flowers are greenish, nonshowy, and form in clusters at the end of the flowering stalk. The flowers are called inflorescences because they group together in clumps of flowers and seeds.

Each seed, called an achene, is enclosed in a triangular paperlike sheath with three wings to each seed that turns rusty brown at maturity. The seeds are pointy at both ends and are around 1 millimeter wide and 2 millimeters long. The tiny seed inside the sheath is reddish brown and difficult to separate from the sheath. The clusters of dock seeds are easy to identify from a distance in an open field. They are in the rhubarb family and have the typical family characteristic of a tall, erect, shimmering, flowering seed head.

Curly dock

The root of curly dock is brown on the outside and yellow on the inside. It can be shaped like anything from a tuberous potato-like root to a longer carrot-shaped taproot. The roots can reach down from 6 to 24 inches into the soil. Often the root is well lodged and difficult to remove fully. When a part of the root is left in the ground, the plant will continue to grow back. The yellow color of the inside root is from chrysophanic acid, emodin, and tannins—which contribute to dock's healing properties, celebrated throughout many cultures across the globe.

Current Uses

Turtle Lake Refuge truly appreciates the wild dock plants! It is rewarding and rather easy to gather the seeds of dock in quantity year-round. Even in the middle of winter when the snow is deep where we live, we can still identify and gather the dock seeds in a field covered in snow. The showy reddish-brown seed heads stick up above the snow line and beckon us to gather seeds. The seeds fall into a basket or bag easily by running your hands over the stalks. The seeds easily break off from the center stalk and fall into the waiting container. In a relatively short time, you can gather a gallon or two of these seeds. They store well once dry and can be used

throughout the winter months for adding additional nutrition to recipes.

Dock leaves, stems, roots, and seeds all make it into our wild CSA program baskets at different stages of their development throughout the season. Dock disperses its seeds close to the mother plant and you will often find a large patch of dock in a given area, making it easy to harvest in quantity. At the Turtle Lake Community Farm, we have a few mother plants that have been there for years. I do not harvest the roots of these plants because I appreciate their greens and seeds each year; however, when the baby docks sprout up in masses in the spring near the mother plant, I will harvest the whole young shoot, root and all, for the wild CSA program and for our recipes at the café.

We love adding the dock seeds to raw sun breads and dehydrated sprouted breads, breakfast cereals, and energy bars. I have noticed that dock seeds can vary in their taste quite noticeably, however. Some seeds are mild and delicious while other seeds are very concentrated in their flavors. It is always wise to taste the seeds each time they are gathered, because depending on where dock is growing, they will have distinct flavors and potency.

Be mindful when dock is growing in less than appealing locations and refrain from harvesting there. They can grow in septic fields and waste places where you may not want to ingest them. Perhaps it is best to let them help break down the toxicity of the soil with the support of the earthworms and microorganisms until the soil is more cleaned up before you use it for your consumption.

Dock seeds

Dock seeds are the featured ingredient in Turtle Lake Refuge's delicious dock mustard pretzel! (See the recipe at the end of this chapter.) We combine the wild dock seeds with germinated buckwheat, sesame seeds, and almonds. We grind it all into an alive wild flour with a little salt and mustard seeds, shape them into the traditional knot, and dehydrate the lovely pretzels into perfection! Before drying, we drizzle on top our homemade mustard sauce from the wild gathered mustard seeds.

I like to add the young dock greens as a minor ingredient in our winter green powder. Because of the oxalic acids that can accumulate in the older

plants, I specifically do not include the leaves of plants that have gone to flower in my powders. Dried green powder is a concentrated food and it is important to include plants in their stage of growth that are still mild and ideal for ingesting. It is important when making both green juices and green powders to use a moderate amount of dock greens. Remember that our bodies will tell us when we have had enough of a certain plant, but when we drink it in a juice in a few gulps or when we add the green powder to our smoothies we do not have the chance for our bodies' instinct to indicate we've had enough.

History

In Denmark the body of a man over two thousand years old was found perfectly preserved in a wetland bog. In his stomach were a large variety of weed seeds, including dock and knotgrass. He must have died in late winter or early spring before any of the young greens were growing because his food was mainly a combination of dried grains and seeds made into a bread or cereal, which he ate throughout the season.

Dock seeds in Lapland country (left); Dock roof garden in Norway (right)

The broadleaf dock (*Rumex obtusifolius*) in nineteenth century Europe was commonly used to wrap homemade butter. The leaves have a natural smooth and waxy nature that creates a perfect wrapping material for protecting and preserving the butter.

Although it is considered a native to Europe and Western Asia, once it arrived in North America many Native American tribes took advantage of dock for healing remedies including the Teton Dakota, Ojibwa, Choctaw, Chickasaw, Pima, Wichita, Pawnees, Houmas, and Meskwaki. Dock is credited with dissolving boils, getting rid of gouty symptoms, and elimating excesses.

In Lapland, the Sami people use dock greens as a substitute for rennet to curdle milk in making buttermilk and cheese and for preserving the milk itself. In the Alaskan arctic the natives use dock greens for the base of a fermented food that is made with large amounts of cooked and pureed dock greens, berries, seal blubber, and oil. The mixture is stored in wooden kegs to ferment. The fermentation process increases the nutritional value of the food as well as preserves it until the winter season freezes it. Some northern Native American tribes mixed dock greens, ripe berries, and salmon eggs together to make dried cakes for traveling food and for trade.

A traditional method of making homemade oxalic acid salt crystals for cleaning uses dock greens in large quanitity. The recipe includes gathering 20 pounds of dock greens and pressing them down into 6 pounds of juice. By heating the juice, the water evaporates off until there are about 3 ounces of concentrated salt crystals left. These salts are historically called essential salts of lemon and used to clean ink and rust stains and polish wood. Chemically made oxalic acids can be purchased over the counter in some places. These salts are so concentrated that you need to be careful that you do not touch them with bare hands for risk of burning the skin.

Canaigra (*Rumex hymenosepalus*) has a root stalk that contains close to 35 percent of tannins, making it a useful ingredient for tanning leather hides. The dock stems, leaves, and roots make a beautiful yellow coloring dye that does not need a mordant because of the high concentrations of iron in the root. The tannins from the root of *Rumex hymenosepalus* have been hydrolyzed and used as a cancer treating agent by the National Cancer Institute.

In the high alpine regions of Austria, a variety of dock, *Rumex alpinus*, was and continues to be used in traditional Austrian medicine internally for healing various viral infections and as a general purgative for assisting elimination. From the Americas to Russia, from Africa to Scandinavian countries, dock has been utilized across cultures as a common remedy for

many ailments. It is often referred to in different cultures as a health aid and applied as a wash to heal skin disorders, to stop bleeding, and is consumed internally as a drink for purging and elimination.

Today it may be considered a weed to many, and yet if we visit history, dock was sought out and utilized as a powerful healing medicine as well as a common food.

I find it important to remember how our ancestors have used the wild common weeds as part of daily life. It is a sustainable practice to return to these simple empowering techniques that maintain optimal health while honoring the value of the resources growing around us.

Dock at 7,000 feet in elevation

Edible Uses

The young sprouts of dock are a delicacy. Dock leaves are in their most prime edible state when they are young and tender. They taste like sour spinach at this early stage, which makes them delicious to eat in salads, on sandwiches, and in a host of other recipes that call for greens. Dock's sour nature creates a gentle astringency in the body, and when young it is

pleasant. As the plant matures, the potency increases and can become overwhelming. This is in great part because of the concentration of oxalic acids that build up over time. In general, after the plant goes to flower, the leaves can create a burning sensation at the back of the throat when eaten in any quantity. In addition to the age of the plant, another key factor to its edibility is where it is growing. If dock is in a lush, moist environment, sometimes the leaves and stems can be tasty and mild even though it is bigger and older; whereas, if the plant is growing in drier and more inhospitable conditions, the concentrations of oxalic acid can build up quicker.

This is why it is key to always taste test the dock prior to harvesting in any quantity. I strive to keep a beginner's mind when I am out with the plants. Humbly, I like to reintroduce myself to each plant even if I have eaten dock a hundred times. I remind myself that I have never met this exact specific being yet and, in respect for both of us, I like to go slow as we get to know each other.

Dock seed flour (left); Dock bread (right)

One of my favorite snacks when available is the tender stem of dock. Early on in the spring, before the plant begins to shoot up as the flowering stalk, the stems of the lower leaves are thick, juicy, tender, delicious, and mouth-wateringly good! The stems are the juiciest part of dock; it is where the plant stores its water. Even when the leaves may be a little too concentrated for eating in quantity, the stems will often be mild, tasty, and appealing in their flavor. When I find a good stand of dock in the young stage with long and juicy stems, I gather extra to take home with me. They are similar to rhubarb in their sour nature and make an excellent pie! They can be blended into a lemonade-like juice by adding an apple for sweetener.

Where I live in southwestern Colorado, we do not have lemon trees growing, except occasionally in a greenhouse, so plants that impart a lemony flavor are truly a delicacy and gift to our culinary creativity!

The seeds of dock offer a diversity of uses. The delicate triangular papery sheath around each seed is something I do not worry about trying to remove. I find that when I grind the seeds either in a mortar and pestle, a coffee grinder, or a blender, the sheath grinds up as fine as the seeds. I feel that a little extra fiber is most often a benefit. To remove some of it, grind the seeds very lightly to break the seed free and let the lighter fibers blow away while the heavier seed drops to the bottom of the bowl.

I enjoy adding dock seeds to my breakfast cereal, and adding the ground-up seeds as flour to supplement other flours in making sun breads. My favorite dock bread recipe is simple, delicious, and easy to make. Mix ¼ part dock seeds with ¾ part buckwheat groats and grind fine. Add equal parts coconut oil and water to create a dough consistency and add according to taste your desired amount of salt and honey. Shape into mini loaves and dry in the sun for one day if you live in a dry climate, or in a dehydrator if it's raining or humid.

The nutrition in both dock leaves and seeds is abundant. It is a great source of thiamin, niacin, folate, riboflavin, magnesium, phosphorus, potassium, copper, and manganese. It is one of the richest sources of vitamins C and A; 1 cup of raw dock greens contains 106 percent of their daily requirements. Dock contains an abundance of calcium, iron, and B vitamins. Both the leaves and seeds of dock contain high amounts of dietary fiber and act as a natural gentle laxative, supporting the elimination system.

Medical Actions

- Alterative: improves overall health due to quality nutrition
- Antiscorbutic: provides vitamin C
- Antiseptic: inhibits infection
- Aperient: acts as a mild laxative
- Astringent: tightens, constricts, and tones while reducing secretions and discharges
- Anticancer: inhibits cancer growth
- Cholagogue: increases flow of bile from gallbladder into the duodenum

- Depurative: reduces impurities or heterogenous matter
- Febrifuge: reduces fever

Medicinal Uses

Dock is beneficial for assisting the elimination and breakdown of accumulated excess wastes such as swellings, tumors, colon congestion, and blood toxicity. Dock can be used internally and externally to support the elimination process. The leaves and roots can be applied as a poultice in their fresh forms. When dried and added to water, they create a healing tea. The fresh leaves provide a rich source of vitamin C and chlorophyll. The leaves are astringent in nature and help tighten and heal skin conditions. Fresh dock leaves crushed to release their juices are a great external poultice for healing poison ivy, poison oak, and other plant-induced skin irritations. Luckily dock is often found growing nearby!

Dock roots

One great way to expose the healing nature of dock to the skin is to take a root tea bath. Add the dried root to hot water, make a concentrated tea, and pour it into bathwater. Soak in leisure to absorb the benefits of dock into your skin. A more concentrated preparation method to use when out in the

field is to grate the root directly onto the skin for healing sunburns and other skin rashes or to use a cloth soaked in dock tea as a body wash. The roots reduce the release of histamines and greatly shorten the healing time. The astringency of both the root and the leaves tightens the skin, prevents infection, and promotes fast recovery from burns and cuts.

The root is high in tannins. Roots can be powdered and combined with an oil and beeswax as a salve that is very effective in healing a variety of skin problems. The juice from the stems, leaves, and roots, when placed on the gums, assists the healing of gingivitis. A good daily practice for maintaining good gum health is to rinse the mouth with a concentrated tea of dock. I keep a jar of powdered dock root near the sink, fill a cup with a teaspoon of powdered root with water, and let it steep for a day up to a week. I use a strainer straw to sip the tea—not to ingest and swallow, but as a mouth rinse. I sip in a mouthful and swish it around for a few minutes and then spit it out. It is concentrated and I immediately feel the tightening nature of dock working for the benefit of my gums and teeth.

My friend and herbalist, Doug Simons, makes a wonderful wound tooth powder with dock as one of the primary ingredients. He recommends packing it in a problem area such as a cavity. He encourages people to take charge of the health of their teeth by using dock along with a few other plants, such as horsetail, to eliminate any infection and decay. Horsetail is high in silica and helps rebuild the enamel of the teeth. Many people including myself have benefited from his valuable advice.

Drinking the root tea is fantastic after a meal to help break down undigested fats and proteins. It is a great digestive aid, especially after eating heavier proteins that are only slowly eliminated from the body.

Using dock leaf as a poultice helps ease the pain of rheumatism. Applying freshly crushed leaves to an aggravated area helps reduce the congestion and relieve pain. The poultice also encourages the healing of boils, acne, infections, and itching.

The dock plant makes a good decoction and an infusion. Both methods use hot water to make a tea; however, infusions are made with the softer parts of the plant like leaves and flowers, which needed to be heated only a short time to impart the benefits to the tea, whereas decoctions use the woodier or harder parts of the plant like the root, stems, and seeds and require being heated for a longer time. The dock root tea is an effective

medicine for constipation, skin irritations, and athlete's foot. Dock is also valuable as a powdered root ingested to support the functions of the kidneys, liver, lymph, and intestines. It aids the body's natural abilities to cleanse toxins from the system. The root acts as a mild laxative as well as a diuretic, helping to remove excess waste. It is beneficial for acne and other skin troubles because of its cleansing abilities. It helps all the eliminative organs do their jobs more effectively. Dock is known to free up iron stored in the liver and make it accessible for the body's benefit.

Dock has proven itself to be a simple and true remedy for many common issues that show up in our daily lives. It is empowering to know that this medicine is often found growing right outside our doors. With a little knowledge and experience, dock can be used to help decrease a host of physical problems and increase our quality of life for free with just a little effort and appreciation.

Living Soil class harvesting dock root

Caution: Curly dock greens can become high in oxalic acids as they mature. Oxalic acids are a metabolic product of ascorbic acid, which is not

metabolized by the body but generally released in the urine. When eating the leaves raw, choose young tender leaves that taste good and create no reaction in your mouth. If they are older and have more oxalic acids buildup, your tongue will tell you when to stop. When a plant has accumulated too much of the oxalic acids, it creates an unpleasant sensation in the back of the throat. It is the older leaves that can do this. This is a sign that your body has had enough. Trust this! Both freezing and cooking the greens will break down the oxalic acids. Too much in our systems can bind with the calcium from our tissues to create calcium oxalate crystals that can accumulate in the kidneys. Symptoms of an overdose are a burning sensation in the mouth or throat, stomach pain, and cramping of muscles. A counteracting remedy for an overdose is calcium carbonate antacids, yogurt, or dairy.

Positive Take on Oxalic Acids

Doctor Norman Walker, an author and health advocate, refers to oxalic acids as an important element that tones the colon and encourages health peristalsis and elimination. There is a natural amount that is found and required for healthy blood. In general, foods that are high in antioxidants are also high in oxalic acids. A healthy amount of oxalic acid is important in the diet to assist with healthy elimination and tone of the organs. If we do not receive enough oxalic acids through our diet, our body will manufacture it through synthesizing from ascorbic acid. There is also plenty of research that connects the crystallization of salts in the kidneys sometimes associated with oxalic acids with excess meat, processed food, and acidic beverage consumption.

Recipes

Dock Pesto

1 cup dock or French sorrel leaves
1 cup basil
1 cup buckwheat lettuce or spinach
3 cloves garlic
1 lemon, juiced
1 cup cashews

1 teaspoon salt
2 tablespoons olive oil

Blend all ingredients until smooth. Add water if necessary to make it easier on the blender. Enjoy this pesto sauce with a zucchini linguini or as a dip with vegetables.

Dock Mustard Pretzels

Pretzel

1 cup dock seeds
1 cup almonds, soaked
½ cup sesame seeds, soaked
1 cup buckwheat, soaked
1 teaspoon mustard seeds
1 teaspoon salt
1 teaspoon caraway seeds
1 tablespoon honey
1 tablespoon olive oil

Mustard Sauce

1 teaspoon salt
1 teaspoon mustard seeds
1 tablespoon honey
1 tablespoon vinegar
½ cup cashews

Grind the dock seeds in a coffee grinder or blender until fine. Grind all the rest of the seeds and nuts in the pretzel ingredients in a blender or food processor until well broken down. Pour into a bowl with the fine dock flour. Add the rest of the ingredients and just enough water to knead into dough. Shape into long rolls and then twist the rolls into a simple circle cross, the classic pretzel shape. Blend the ingredients for the mustard sauce in a blender until smooth and drizzle it on top of the pretzel. Dehydrate overnight at 108 degrees and enjoy warm, if possible.

Wild Dock Seed Cinnamon Raisin Sun Bread

1 cup dock seeds

1 cup buckwheat groats
1 cup oats
1 cup cashews
1 teaspoon salt
2 tablespoons honey
2 tablespoons coconut oil
1 tablespoon cinnamon
½ cup raisins, soaked

Grind all the dry ingredients together in a blender until the mixture turns into fine flour. Add the soaked (and drained) raisins, coconut oil, and honey and mix together by hand. If you need extra liquid, add the raisin soak water to make it into a doughlike consistency. Shape the dough into mini loaves and either bake in an oven, under the sun, in a dehydrator, or on a hot rock on the woodstove (turning periodically). This is a high-fiber nutritious bread that will go with most meals or can be eaten as a delicious solo snack.

Baby Dock Greens Salad

1 cup fresh young dock greens
1 head butter lettuce or miner's lettuce when available
1 cup chickweed (optional)
1 tomato
1 cucumber
½ cup mung bean sprouts
¼ cup alfalfa sprouts
1 tablespoon of olive oil
1 tablespoon apple cider vinegar
1 tablespoon dulse flakes

Tear or chop the greens into bite-size pieces and dice the cucumber and tomato. Add all the ingredients in a salad bowl and drizzle with olive oil, apple cider vinegar, and dulse seaweed for a delectable wild green treat!

Dock Seed Breakfast Cereal

¼ cup dock seeds
½ cup sunflower seeds

¼ cup flaxseeds
½ cup buckwheat
½ cup raisins
1 banana
½ teaspoon cinnamon
½ teaspoon salt
1 tablespoon apple sugar (dried apples ground into a fine powder)

Grind the seeds finely in a coffee grinder or a blender until the material has a flourlike consistency. Place this and the raisins in a bowl. Add enough hot water to cover the mix and let sit for five minutes. The cereal will absorb the water, so add more hot water as needed and mix in the rest of the ingredients. Enjoy while it is still hot! The cereal is highly nutritious and gives consistent stamina for a full day of work and play.

Curly Dock Lasagna

Pasta

4 cups fresh young dock greens, slivered the long way
4 zucchini, sliced in thin layers

Marinade for pasta

2 tablespoons of olive oil
2 tablespoons apple cider vinegar
2 teaspoons of salt

Sauce

4 tomatoes, diced
½ cup mushrooms, chopped
½ onion, diced
2 cloves garlic, minced
½ cup fresh basil or 1 tablespoon dried basil
½ cup fresh oregano or 1 tablespoon dried oregano
1 tablespoon honey
1 teaspoon salt
1 teaspoon pepper

Cheese

2 cups cashews, soaked
2 lemons, juiced
1 teaspoon salt

Frank Cook, the late and great wild herbalist, inspired this recipe. Begin by marinating the zucchini and dock greens in the olive oil, vinegar, and salt. Prepare the sauce by combining all the ingredients in a bowl. Prepare the cheese by grinding the cashews, salt, and lemon until smooth. In a casserole dish, first place a layer of sliced zucchini and dock greens, then a layer of cheese, then a layer of sauce. Repeat this process until all your ingredients are added. Try to end with a layer of sauce. This live lasagna is ready to eat immediately, but if you wish to serve it warm, place it in a dehydrator or an oven for a short time. Garnish with fresh basil and dock greens.

Sour Dock Lemonade

1 cup fresh young dock greens
2 apples or 2 tablespoons honey
1 quart water

Blend all ingredients and strain out the pulp. Enjoy this high vitamin C refreshing drink!

Dock Root Nightcap Tea

½ cup dock root, dried and chopped
3 cups water

Simmer the dock root in the water for about ten minutes. Drink after a heavy, fatty meal or before bed to support digestion and elimination of unwanted excesses.

Yellow Dock Tincture

1 quart hard alcohol (I prefer to use homemade hard apple cider or a local distilled liquor, but any high-proof alcohol will work)

Clean and cut up several fresh roots. Put them in a clean glass container. Use liquor that is at least 100 proof. Add 2 cups of alcohol to 1 cup of fresh

roots. If you are using dried roots, use a 5:1 ratio instead. Let steep for three to six weeks, strain, and bottle.

Dock Tooth Healing Balm

1 tablespoon comfrey root, dried and ground fine
1 teaspoon pine pitch, still soft and pliable

1 tablespoon dock root, dried and ground fine

Mix the dried powders. Heat the pine pitch just enough to melt, but avoid overheating. Keep the pitch in its raw state for the greatest microbial effectiveness. Add the melted pitch to the powder and mix until it forms into a state like chewing gum. It can be stored in the refrigerator or freezer until you need it. You will have to heat the mixture gently to bring it back to its malleable state.

Use a small amount for a healing “filling” or for an area of the tooth that is in need of repair. If you have a dent or hole in your tooth, use the gum to fill it. Leave it in for several hours to a full day. The dock-comfrey pine gum can assist in reducing infection and limiting decay in the tooth while helping the tooth regrow its enamel and bonelike strength. The dock is also a regenerative influence on the gums to repair their weakness and gain firmness and integrity. Take a break of a day or two in between each refilling. If there is any additional sensitivity around the gums or tooth after using, then discontinue.

A Few Important Notes before Making Any Tincture

- Make sure that you know the plants you are working with through research.
- Use a high-proof alcohol made for human consumption. I prefer to use homemade hard apple cider or local distilled liquor but any high-proof alcohol will work. It is recommended to use a grain alcohol that is 95 percent alcohol or 190 proof.
- Make sure that the alcohol covers the plant material fully. Do not leave any plant material exposed to the air.
- As a general rule, allow the tincture to sit for a minimum of two weeks, strain the plant material out, and pour it into dropper bottles.
- Tinctures are intended as medicine and should be used in small amounts. Using a small dropper application, add a few drops to your tea, juice, or water, or directly into your mouth when needed.

GRASS

May grass cultivate beauty from simple pure and whole living—pura vida!

“All the wild grasses have eight amino acids
As a survival food, it could save your asses”

Grass

Family: Poaceae

Latin Name: *Poa annua* (*Poa* means “food or fodder” and *annua* means “annual”)

Related Useful Species: Teff (*Eragrostis tef*), Kentucky bluegrass (*Poa pratensis*), wheat (*Triticum aestivum*), barley (*Hordeum vulgare*), oats (*Avena sativa*), rye (*Secale cereale*), sorghum (*Sorghum bicolor*), rice (*Oryza sativa*), corn (*Zea mays*), pearl millet (*Pennisetum americanum*), sugarcane (*Saccharum officinarum*), bamboo (*Dendrocalamus strictus*); all members in the grass family are edible in some form

Global Common Names: English (annual bluegrass); Indonesian, Malay (rumput); Gaelic (feur); Basque (belar); Estonian (rohi); German (gras); Czech (trava); Banjar (kumpay); Swahili (nyasi); Lithuanian (zole); Finnish (ruoho); Sudanese (jukut); Spanish (pasto); French (grazon)

Description

Grass is one of the oldest and most abundant flowering plants on Earth. Out of all the vegetation on the planet, the grasses comprise nearly one fourth and cover over 30 percent of all land on Earth. Even in Antarctica where there are only four flowering plant species, two of them are grasses—and both of them edible! Grass is one of the first pioneer species that is capable of taking root even on the barren and ice-laden landscape. It is the grasses that are found along with the mosses and lichens that begin to create soil and shape the ecosystem to become more habitable by a range of other diverse species.

The Poaceae family contains over ten thousand species. The grass family is probably the most important plant family economically because of the diverse uses of all the species such as bamboo for building materials, sugarcane, rice, wheat, barley, sorghum, rye, and corn for both food and fuel. The entire family of grasses falls into the plant category of monocotyledon (shortened as monocots). Monocot seedlings typically have one leaf (or cotyledon), while dicots (dicotyledons) have two leaves that sprout out of the seed. Monocots have parallel veins that run from one end to the tip of each leaf.

Grasses typically have hollow stems and contain swollen joints where the

new leaf blades sprout. In comparison, sedges and rushes are solid and so do not have swollen joints or nodes. Grasses are most commonly flat. A helpful way to remind us of the nature of each is through the saying, “Sedges have edges, rushes are round, and grasses are hollow right up from the ground.”

Wild grass

Grass seeds are true grains and each wild variety of grass can provide a rich, nutritious source of carbohydrates from the ripened seed. Generally grass seeds have the potential of being edible. There are a vast variety of wild and cultivated grasses, each producing an edible seed, that range from rice or wheat to the wild, smaller varieties. Even some of the tiniest seeds like the Ethiopian grain teff, an annual bunchgrass, is a storehouse of carbohydrates. Teff, which means lost, derived its name because the seed was so small it could easily be lost.

The flowers of the grasses are inflorescences, which means they cluster

together at the terminal end of the flowering grass stalks in clusters or plumes. The flowers are typically inconspicuous but can be mildly showy. Grass flowers are pollinated by wind and insects. The grasses are mostly wind pollinated, although bees and insects also regularly visit these flowers. When there are no flowers blooming from other species, the bees will visit the grass flowers to collect the pollen and make honey.

Grass grows from the base of each blade, not from the tip—making grass resistant and able to grow back after the grazing of animals. The genus *Poa* typically contains some of the sweetest grasses used for food for livestock. In addition to being a pioneer species colonizing new lands by preparing the soil for other plants, it offers rich food resources as a forage for other creatures.

Kentucky bluegrass (*Poa pratensis*) is one of the most common cool season turf grasses grown on golf courses, sports fields, lawns, and parks in the United States. In many regions, such as the drier climate of Colorado where I am from, Kentucky bluegrass is not native and requires excessive water and fertilization to keep it alive. Even so, it would be edible if it were not sprayed with “weed and feed,” a mixture of chemical fertilizers and herbicides—which unfortunately makes it toxic to most species of life.

Annual bluegrass (*Poa annua)* is a widespread, low growing wild grass that has slightly flattened stems that can spread across the soil as well as grow erect and upright. The stems are anywhere from 2 to 12 inches long, shooting out grass leaves off the stem in an alternate pattern. The leaves are soft and bright green and have a distinct tip that is slightly curved, forming a narrow canoe shape. Grass leaves are smooth with no varying jagged nature to their edges; however, they can be razor-sharp if accidentally brushed against the skin, causing a paperlike cut.

The grass flowers are tiny, yellowish white, and delicate at the end of each flowering stalk, with multiple flower heads branching off each stalk. When given a closer look, it is easy to see many tiny flowers clustered together at the top of the grass. Annual bluegrass flowers continually almost all season. When it goes to seed, the seed heads form in a pyramid shape at the top of the stem in sections. The roots grow in a spreading cluster in the form of a dense branching mat. It is considered an annual grass; each season it dies back and reseeds itself the next year.

Annual bluegrass is one of the grass species that is pioneering the new

lands in the Antarctic Circle. It has made its way to the South Shetland Islands and is considered an invasive species with its eradication mandated. The beneficial practice of viewing problems as resources is still being developed in these regions.

Current Uses

I began growing wheatgrass for my mom and aunt Margie at the Rocky Mountain Retreat in the late 80s, and a team of us at Turtle Lake Refuge continue to grow it for the community, and currently provide many local juice bars in town with the young grasses for wheatgrass shots. We purchase our wheat berries from a local farm that grows organic wheat about 30 miles away. It is an amazingly inexpensive grain for us to purchase. A 50-pound bag only costs $15.50, and the farmer delivers it to us. What a blessing! We plant close to 10 pounds of seeds twice a week, which grows about 30 trays a week.

Dylan biking to farmers' market

During the summer, we load our three-wheel bikes with as many as six trays of wheatgrass plus another six trays of microgreens and pedal to the farmers' market. One of our three-wheel bikes converts into a wheatgrass juicer by attaching a stainless steel grinder to a rotating spindle connected to an alternative chain. The wheatgrass juicer is attached to the bike between the handlebars. In order to juice grass and stay in a stationary place, we must disconnect the main chain. We have the option of juicing the grass while pedaling around town if we keep the main chain attached. The juicer is moved into action by a chain on the other side of the bike that rotates the grinder and presses the grass into juice. When customers order a wheatgrass

shot from us at the farmers' market, some choose the option to pedal their own juice to get a double dose of health.

Sometimes we get overzealous in planting more wheatgrass than we can use. During these times, the overgrown wheatgrass becomes fabulous wigs for dress-up events such as our local winter festival, Snowdown. We have taken the prize for the creativity category due to our wheatgrass wigs and unusual bicycle fleet several times over the years.

Wheatgrass wigs

In the early spring my favorite morning activity is to wander around the land before sunrise, find a place in the wild to sit by a little patch of young spring grass, and graze while I meditate and witness the sun rise over the horizon. It makes me feel so connected to the land, to the season, and to the effortless joy all around me. It is fun to taste each different kind of grass that may be growing in the area. They all taste distinctly unique, and I have highlighted in my mind where the sweetest tasting patches are close to my home.

There are so many varieties of grasses that grow on the planet and generally all of them are edible. Usually the best time to harvest the grass is in the early spring, when the blades are still tender and juicy. Some varieties,

when they are young, will easily break down in the mouth when chewed and therefore will be digested. When I find a patch of grass to sample, I only swallow the fiber of the grass if it naturally disintegrates, otherwise I spit out the pulp after I have extracted the juice. As the season matures, the blades of grass become too fibrous and tough for eating straight, but they can still be harvested and prepared into a juice. When blending grass juice, it is important to strain out the pulp due to the excessive cellulose content. I find that if I cut the blades of grass into 1-inch strips or smaller and add plenty of water, most blenders can break through the cellulose walls and extract the vital chlorophyll-rich juice. Simply strain out the pulp and enjoy the diluted spring tonic as soon as possible!

If you have a wheatgrass juicer, it can also juice most of the wild grass growing outside as well. But because the wild grasses vary in texture, it is wise to go slow and not overload your juicer. I was once in Costa Rica teaching a wild edible foods class and we used the wild grass outside to make our cocktails. The owner became so excited about the great potential of all the local grasses that he enthusiastically loaded his wheatgrass juicer with the wild tough grass. Unfortunately it locked up and it took him hours to free the parts. Just as with all wild foods, it is key to go slow and ease into embracing their gifts to avoid learning lessons the hard way.

When harvesting wild grass seed, the grains are very small, so it is challenging to separate all the chaff from the seed. I tend not to worry about the chaff when I collect wild grain. I bring it home and grind it fine in the blender or coffee grinder. The extra fiber is beneficial to cleanse the colon of any past refined flour residues that may still be gumming up the walls. The wild grains are much more potent in nutrition and dense in minerals than many of the commonly used grains that have been hybridized, so even adding a small amount will increase the nutritional benefits of the recipe.

At our Local Wild Life Café, we use many members of the grass family for our biweekly lunch recipes. We sprout wild rye and grind it with wild mallow to make breadsticks. We sometimes use wild rice in nori wraps. We use soaked barley for making a pilaf dish with great texture. We use oats, sometimes in their rolled form and sometimes we germinate them in their whole groat form. We use local corn occasionally for making our own raw dried tortillas. And of course it is common to find a wheatgrass lemonade on the menu as the juice of the day. This simple recipe blends wheatgrass with a

few local apples, fresh lemon, or ginger to give it just the right flavor to awaken the palate before serving our lunches.

We encourage everyone working and volunteering with us to have a shot of wheatgrass juice whenever they want. We have a hand crank wheatgrass juicer set up in our main grow room for this tradition. We often juice enough to give everyone a shot. Before drinking, everyone takes a slice of lemon and a pinch of kelp. After making a toast to our health, we “lick” the kelp off our hands, “shoot” the wheatgrass juice down in one gulp, and “suck” the lemon to cleanse our palates. It is a very invigorating tradition and initiates newcomers into our tribe!

History

The economic importance of grasses lies in their role as an important food source. Up to 70 percent of the world’s agricultural land is given to crop grasses, and probably even more if we consider the typical front and back lawns.

Plants in the grass family are the most widely distributed plants found anywhere. Fossils show that grasses evolved close to 66 million years ago. Grasses are so successful because of their growth processes and physiological diversity; they have evolved unique photosynthetic pathways for carbon fixation that allow them to adapt to cold climates, hot climates, and places with low carbon dioxide.

Humans began cultivating grass crops over ten thousand years ago, which marked a significant change in human civilization from the hunter-gatherer lifestyle to a culture based on agriculture. The practice of farming initiated a major shift in social evolution. The traditional nomadic ways shifted to focus on creating stability in one place in order to grow the seasonal crops. This stability encouraged the human population to increase and civilization and technology to advance. The advantages of agriculture are certainly many, but our modern practices come with a sacrifice of stress to an area and a high cost to the Earth’s resources. This price is being paid still today due to the depleting tendencies involved with commercial agriculture and civilized technological advancements. By contrast, the hunter-gatherer lifestyle does not burden an area as significantly. When a natural crop of food becomes scarce, the native community moves on to better pastures.

There are over three hundred wild grass species that have been harvested for their cereal grains throughout the world, and thirty-five of those have been domesticated into new varieties. The goal in crossbreeding specific plants was to create grains that produced more and bigger seeds that separated from the chaff more easily and also to prohibit natural seed dispersal tendencies that made it harder to harvest. Grasses were also favored for being able to grow in diverse conditions. Barley was one of the earliest grasses to be cultivated in southwest Asia. Corn became domesticated in Mexico and was originally used for popping. Rice originated in southeast Asia, and sourghum was developed in Africa for the sweet sap, molasses. In Ethiopia, teff (*Eragrostis tef*), a protein-rich grain that comes from an annual bunchgrass, was one of the earliest plants domesticated for food between 8000 and 5000 BC. Teff continues to be an important food crop for Ethiopia and it is being grown in India, Australia, and several states in the United States. Teff is similar to the grains of amaranth and quinoa because of its complete protein content, gluten-free nature, and exceptionally high sources of minerals including phosphorus, magnesium, aluminum, iron, copper, zinc, boron, thiamin, and barium. It contains more lysine than both wheat and barley.

Throughout history worldwide, alcoholic beverages have been distilled from grass seeds. Barley creates beer malt, rice makes sake, corn is used for bourbon, sugarcane is converted into rum, rye into whiskey, and wheat into vodka.

While the cereals have been and continue to be a primary food source for the world, bamboo may have more uses than any other plant on Earth. The young shoots of bamboo are edible, but because of its strength and lightness as a mature plant, it makes excellent building material for the construction of houses, temples, woven mats, bowls, trays, and paper.

Edible Uses

Generally, the entire grass family is edible, including all parts of the plant. However, as they age the blades of grass can develop too much cellulose—although the juice is still edible, the pulp has to be discarded. The majority of the grass family produces an edible grain. The cereal crops are still the main source of carbohydrates and proteins for most of humanity across the

globe. In the middle of the seed is the endosperm, which contains a rich source of carbohydrates for the germinating embryo. When a grain is sprouted, the young growing plant consumes the endosperm as its food source. The amount of gluten in the seed decreases until it all disappears completely by the time it reaches its green grass stage. Out of the 102 minerals on Earth, grass grown in healthy soil contains 92 of them.

The grasses are a major source of complete protein. There are twenty-two essential amino acids utilized in our bodies. Fourteen of them we can create internally but eight have to be consumed from external food sources. The young grasses contain all eight essential amino acids. With these amino acids, our bodies build protein chains to create muscles. Even the juices alone contain the essential amino acids.

Grasses tend to be juicier and sweeter when young, and there are no two grasses that taste exactly the same. It is fun to explore the local wild grasses and see which ones appeal. Some are sweeter and some are more potent and strong tasting. Some varieties of grasses may be tender enough to chew and even swallow if they naturally break down in the mouth, but in most cases they contain a high amount of cellulose that does not break down by chewing. In this case, it is best to chew the grass to release the juices and then spit out the pulp.

Eventually the grass plant blades will mature into a grain like rye, wheat, rice, or corn. These, of course, have all been hybridized from their original wild cousins. The wild grasses make grain seeds as well, just smaller and often more challenging to separate from the chaff.

The majority of grass seeds can be ground dry or sprouted and made into nutritious sun breads, crackers, and used in an infinite number of recipes. It is exciting to explore local wild grass seeds as a food source. Collecting several handfuls of the wild grains, grinding them finely, and adding hot water makes a delicious breakfast gruel. The flour can also be added to bread recipes to increase the mineral content.

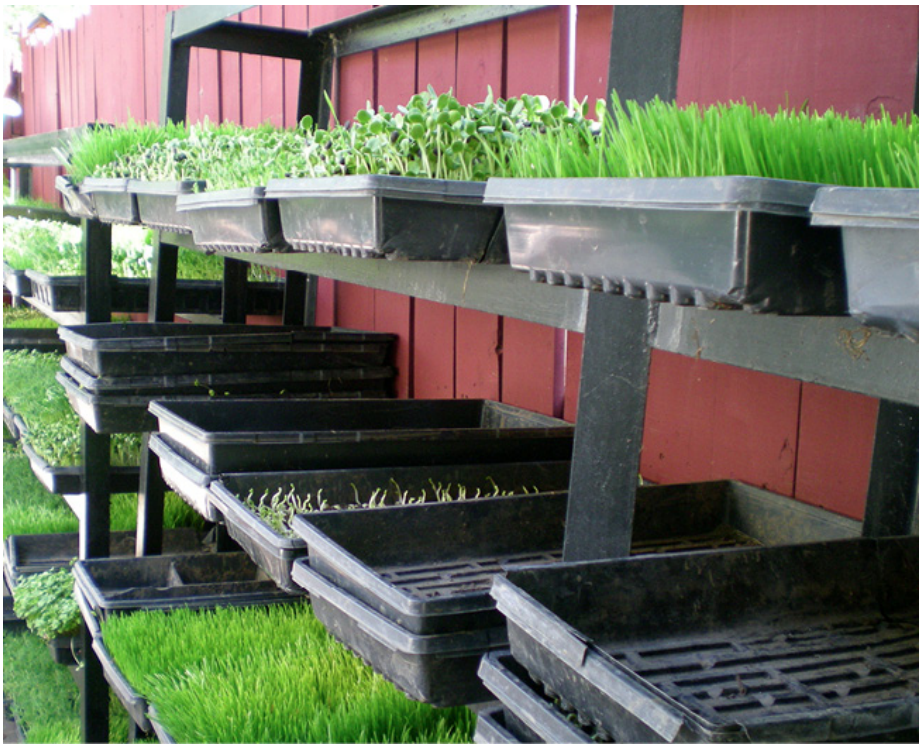
It takes some experimenting and determination to gather enough seeds to add to recipes, but the effort is worthwhile because the wild strains of seeds have been left untouched by human intervention. They are potent in nutrition, even consumed in small amounts. Many of the mainstream cultures around the world have relied upon the domesticated seeds of the grass family for their staple nutrition. In the process of hybridization, the

grains have become bigger and easier to process. However, bigger does not mean better in nutrient value. In fact, it is often the opposite. The majority of grains today have far less nutritive value than the wild grains. Also in the hybridization process, much of the natural fiber has been removed—leaving the grains starchy, which has created a tendency of allergies in many people related to the refined grain products.

Wild grasses are still true to their integrity of nature and because of this still have the potential to offer humanity a wealth of nutrition and value. Many domesticated grains today no longer contain the eight essential amino acids required for a complete protein, but the wild grass seeds still do! The tiny grass seed of teff from Africa is still connected to its wild ancestors and is a complete protein that also contains more lysine than the domesticated wheat or barley. Grains such as rye or wheat have been bred to contain a greater quantity of gluten than the wild varieties. Because of the refining nature of finely ground white flours, the starch and lack of fiber have a tendency to slow the action of the colon. Similar to making papier-mâché paste, by adding water to white flour to make glue, white flour pastries, pastas, and breads do the same thing inside our colon. This chronic problem can possibly lead to allergies due to the lining of the colon becoming obstructed. The irony is that the grass from these same seeds in the raw state can be a supportive remedy in the form of grass juice enemas to help cleanse and clean the colon of the excessive buildup.

Ann Wigmore was one of the first people to bring wheatgrass as an edible grass juice to mainstream attention. She was born in Lithuania and was living with her grandmother because her parents moved to the United States without her. Her grandmother was a healer in World War I and treated wounded soldiers using compresses of rye grass juice and fresh goat milk. When Ann was seventeen years old, she immigrated to the United States to join her parents and siblings. But at eighteen, she was in an accident where a wagon wheel rolled over her leg. Her leg became gangrenous. The doctors and her parents thought she should have it amputated, but Ann had just turned of age, which gave her the right to decide herself. She refused amputation and chose to keep her leg. Luckily her uncle had compassion for her decision and left her in a park each day to sit in the grass while he worked. She remembered her grandmother’s ways in healing the soldiers, so she started eating the grass in the park lawn. A stray poodle befriended her

and aided her healing by licking the wound, which drew out the infection. It healed completely and she was able to walk normally again. She later ran in the Boston marathon, which excluded female runners at that time—so she disguised herself and ran as a man.



Turtle Lake Refuge microgreens

Ann continued to teach health classes and lead healing retreats in Boston and Puerto Rico. She taught anyone interested in preventative medicine and people with major illnesses such as cancer and AIDS and other degenerative diseases about using wheatgrass juice and living foods as primary therapies. Her students experienced amazing success in healing these chronic life-threatening illnesses.

Before I founded Turtle Lake Refuge, my mom, Pat, and my aunt, Margie, started the Rocky Mountain Retreat, a healing retreat that hosted people for eleven days to learn and participate in a concentrated healing program. Wheatgrass was a core part of the program. During the retreats, guests participated in learning to grow young greens and prepare living foods; they participated in healing exercises, biofeedback, dream work, and other cleansing practices that supported their process. The guests used

wheatgrass juice as a drink to bring concentrated chlorophyll into their systems and they also used it as enema implants. During this time, I worked at the retreat planting wheatgrass trays and sprouting grains, beans, and seeds—and generally filling in when my talents were required. Growing and drinking wheatgrass has always held a place of power in my life as a potent healing remedy.

Medical Actions

- Anti-inflammatory: reduces swelling and inflammation of the tissues
- Antibacterial: inhibits the growth of bacteria

Medicinal Uses

Whenever I find myself needing rejuvenation, I utilize grass. I use it as a juice, a mouthwash and gargle, for tooth repair, as an enema, in my bathwater, for poultices, and as an emergency food and source of hydration when I am hiking.

Wild grass juice increases inspiration and clarity of mind. I love to drink it when I need to focus or complete a project. I enjoy it blended in water in a diluted form mixed with lemon and apple, or just straight in a concentrated shot. It is easy to immediately feel the benefits from the abundance of minerals, oxygen, chlorophyll, enzymes, and vitamins found in the grass juice.

Raw unrefined chlorophyll is hard to produce in commercial quantities and is especially hard to store. In a matter of hours after extraction due to exposure to light and air, it loses its biochemical activity and color. This is why it is key to utilize fresh grass whenever possible for both food and medicine. Wheatgrass is easy to grow in the winter months when the wild grasses outside are not available for harvest. (Refer to the microgreens section in Chapter 2 for directions.)

Wheatgrass contains an enormous amount of chlorophyll. Chlorophyll is a molecule that absorbs sunlight and is able to synthesize carbohydrates from CO_2 and water. The plants take the energy from the sun and convert it into the life force of the plant. I love to think of chlorophyll as vibrant green sun energy. When looked at chemically, it has almost the same chemistry as hemoglobin. The main difference is that hemoglobin contains iron and

chlorophyll magnesium. In the 1940s chlorophyll was researched in depth. Doctor Benjamin Gurskin selected 1,200 patients and determined chlorophyll's effects on each person's complaints. Almost all problems lessened or disappeared, from deep internal infections to ulcers to skin and gum complaints.

Chlorophyll can rebuild, cleanse, and revitalize the blood in the body. Drinking wheatgrass juice or any wild grass juice is similar to a gentle blood infusion. It is especially helpful to people who are experiencing anemia. Chlorophyll also binds or chelates to toxins that have been stored in the body. It is one of the best sources of antioxidants. It chemically binds to free radicals, makes them inert, and then eliminates them through the urine and fecal matter. Free radicals are unattached cells that are charged and looking to bind with something; they have enough charge that they will break apart healthy cells functioning as tissues, muscles, and even vital organs. Excessive free radicals can contribute to premature aging and cause disruption of the body's ability to function efficiently. Chlorophyll is a powerful force that binds to these free radicals and removes them from the body.

Fresh wheatgrass is rich in calcium. It is also a great source of iron, which is important for red blood cell formation and the transportation of oxygen from the lungs to the cells. Human blood under normal conditions remains at a slightly alkaline state of about 7.3 to 7.45 (on the scale, above 7.0 is alkaline and below 7.0 is acidic). Metabolic processes create acidic wastes and alkaline minerals serve to neutralize the blood. Wheatgrass has an exceptional amount of alkaline minerals, such as magnesium, potassium, and calcium, and it replenishes the blood and the whole body with these minerals.

Grass also can be effective in protecting the body from radiation exposure. With an increased amount of radiation in the atmosphere and environment currently, drinking a form of grass juice or simply chewing on grass daily can help protect from the potential exposure while increasing our focus for living in ways that make our hearts sing.

Roddy Woomble, a Scottish folk singer who I recently saw perform at Findhorn Ecovillage, has additional advice for those of us looking for a focus in life. "Gather with others and work like you can and live like you can!" The whole grass family can help reconnect us with our sense of

purpose in service to all!

Recipes

Sprouted Wild Rice Nori Wraps

1 cup brown rice, sprouted
1 cup daikon radish, minced
4 dried nori seaweed sheets
1 ounce ginger, shredded
3 tablespoons soy sauce
1 carrot, slivered
1 cucumber, slivered
1 red bell pepper, slivered
1 avocado, sliced
Wasabi (optional)

Hope, one of our Living Soil students, made this lovely nori wrap with sprouted rice. Sprouting rice generally takes a little longer than most other grain seeds, but basically follows the same procedure (refer to the sprouting section in Chapter 2).

Once the rice has sprouted, grind the rice with the daikon radish, ginger, and soy sauce in a food processor. Lay out a full dried nori seaweed sheet on a flat surface. Spread on a layer of the rice mixture and add a few slivers of all other ingredients. Skillfully roll the nori tightly and cut into six pieces. Make as many rolls as you have ingredients for. Serve as is or with an additional sauce of tamari and wasabi.

Japanese studies have demonstrated that sprouted rice compared to cooked rice has four times as much available fiber, three times as many B vitamins and magnesium, and ten times as much GABA (gamma-aminobutyric acid), a neurotransmitter that supports the pituitary gland’s optimal functioning.

Sprouted wild rice nori wraps

Wild Grass Seed Cereal

½ cup wild seeds, finely ground
1 cup other flour from grinding the seeds of buckwheat, oats, or millet
½ cup sunflower seeds
½ teaspoon salt
2 tablespoons honey
1 tablespoon coconut oil
½ cup raisins

Place all ingredients in a bowl and add hot water. Cover with a plate and let sit for five minutes. Enjoy this warming and filling breakfast to start off the day with plenty of energy to supercharge all your activities! Another option for preparing this cereal is to soak all the grains overnight before you grind them. Once soaked, you can blend them together into a paste and then add the rest of the ingredients and the hot water before eating. They are more nutritious if soaked or sprouted first.

Grinding the sprouted grain

Sprouted Rye Pumpernickel Sourdough Bread

Method 1

2 cups sprouted rye flour (sprouted grains dried and ground fine)
2 cups sourdough starter
2 tablespoons molasses
1 teaspoon salt
2 tablespoons coconut butter or olive oil

Method 2

2 cups sprouted rye (ground in a food mill to make the dough)
2 cups sourdough starter
2 tablespoons molasses
1 teaspoon salt
2 tablespoons coconut butter or olive oil

Sprout the grains. If you are ready to make bread when the sprouts are ready, grind them fresh in a hand crank food mill to make the dough. If you want to

make your bread later, dry your sprouts in a dehydrator and grind them into fine flour in the blender and store in the refrigerator for later. When sprouting grains for bread, it is important to harvest the sprouts early when their first white tails begin to sprout from the seed. If you wait too long, the flavor and texture of the grains shifts and begins to taste like sweet grass or become stringy in texture. Once the sprouts have been ground, or if you are using the sprouted flour, add the sourdough starter to the mix with all the other ingredients and knead into a loaf. Set the loaf in a bowl in a slightly warm place, cover with a cloth, and let it rise for several hours. Knead the dough, leave to rise a second time, and then form into loaves. Place the loaves into baking pans.

I do not have an oven at my house, so I cook my bread in a solar oven or in my woodstove. This takes a little finesse because I am not able to control the temperature as easily. I find it personally more pleasurable because of the extra effort it takes, even if my bread doesn't always turn out consistently. I prefer low-temperature baked bread. When I use my solar oven in the winter, the temperature rarely reaches above 150 degrees. In this case, I leave it in the solar oven almost all day long, which ends up being close to eight hours before the bread is done. If you have an oven, preheat it at 350 degrees and bake the loaves at 200 degrees for about forty-five minutes to an hour or until they are cooked to the middle of the bread.

Teff Morning Gruel

¼ cup teff
2 cups water
¼ teaspoon salt

Place all the ingredients in a pan and heat for thirty to forty-five minutes, stirring occasionally. The teff makes a wonderful buttery texture that is fun to eat for a warm wintery breakfast. Add raisins, bananas, or other additions to make this nutritious, high-protein cereal extra delicious and enjoyable.

Wild Grass Seed Sun Bread

1 cup wild seeds
3 cups grain seeds (such as buckwheat, oat, millet, or barley)
1 tablespoon coconut oil

1 tablespoon honey
1 teaspoon salt

Mix the wild seeds with the domesticated grain seeds like buckwheat, millet, or oats. Grind them both together dry in the blender until they form flour. Add coconut oil, honey, and salt. If the dough is too dry, add a little water to make it easier to knead. Shape the dough into 1-inch-thick mini loaves and place outside in the hot summer sun. Turn over after several hours of sun baking. The bread is usually done within one day. Another variation is to soak all the grains overnight, drain off the water, and let sprout for one day before grinding them together. This process initiates the life force within each seed to activate its full potential of nutrient power!

Wild sun bread

Wheatgrass Ginger Cooler

2 cups wheatgrass, chopped into 1-inch pieces
2 tablespoons honey
1-inch piece fresh ginger
5 cups water

Blend all the ingredients in the blender and strain out the pulp. Enjoy this tart and gingery beverage that supports optimal health in one of the most pleasurable ways.

Wheatgrass Tradition: Lick, Shoot, Suck!

Pinch of kelp
2 ounces concentrated wheatgrass juice
Wedge of lemon or lime

After a toast for health, lick the kelp, shoot the wheatgrass shot, and suck the lemon wedge for an invigorating and delicious burst of alive energy!

Rejuvelac: A Fermented Grain Beverage

Rejuvelac is a fermented beverage that originated from Ann Wigmore's life's work. In her research, she realized that numerous diseases stem from the inability to digest some of the foods humans eat. This chronic indigestion stems from the fact that standardized food is cooked and therefore void of its natural life-enhancing enzymes. Simply by increasing the active enzyme levels and the amount of healthy bacteria in the gut and intestines, the body's ability to heal improves in leaps and bounds.

Wigmore highly promoted rejuvelac as a form of "living water." She used it in replacement of water during her retreats because the tap water in Boston had unhealthy additives such as chlorine and fluoride. She distilled the city water and then enlivened it by fermenting the water with grains into rejuvelac.

Although she primarily fermented wheat because of its wide availability, any grain can be used, including millet, rye, rice, and the wild grass seeds. Pseudograins such as buckwheat, quinoa, and amaranth can also be used to make rejuvelac.

Ann Wigmore's rejuvelac recipe in the 1980s used unsprouted grain and, according to my mom's experience, had an unpleasant flavor. Other rejuvelac recipes use sprouted grains. We have experimented with both recipes and learned that by sprouting the grains the flavor is far superior and tastes lightly lemony. The key to making good tasting rejuvelac is to sprout the grains first and then blend them for the fermenting process.

- Sprout 1 cup of dry grains

- Blend sprouted grains with 2 cups clean filtered water in the blender
- Add the mixture to a clean gallon jar (the mixture should cover about 2 inches of the bottom of the jar)
- Fill the rest of the jar with clean filtered water
- Once the mixture has settled, scrape any foam or debris off the top of the liquid. This step is important! If the foam stays on the top, it can create an anaerobic condition for the rejuvelac. The foam "lid" does not allow oxygen to circulate and rather than create healthy aerobic microorganisms, this oxygen-deprived environment will spoil the rejuvelac.
- Partially cover the jar with a lid or a cheese cloth to allow a little air in.
- Allow the sprouted seed water to sit at room temperature for two days if a very dilute taste is desired or three days for a slightly stronger taste, occasionally stirring to make sure the ferment is oxygenated. The cultured water will become inoculated with wild yeasts from the environment and after about two to three days it will taste like a lightly bubbly, mild, lemon-tasting drink. The pleasant taste is a sign you have made a good batch! Pour off the rejuvelac water from the ground grain mixture on the bottom of the jar into another jar and store in the refrigerator. You can use the remaining bottom mixture to make another batch of rejuvelac. Add more water to the previously ground grain mix and follow the same procedure, but this time leave it out at room temperature for only one day. It will culture much faster the second time. Enjoy this beverage straight or add it in recipes. It is rich in vital active enzymes and natural beneficial bacteria that promote effective digestion and a strong healthy colon.

Wild Grass Juice

1 cup grass, cut into 1-inch pieces
1 apple
1 lemon
4 cups water

Choose young grass if possible, but if wild grass is too old to chew, it can still be blended into a juice. Gather a handful of grass from outside or from your indoor microgreen trays. Using scissors, cut the blades into 1-inch pieces directly into the blender. Add one apple, one lemon (peeled and deseeded), and 4 cups of water. Blend thoroughly. Strain the green juice and

compost the pulp. It has too much cellulose to be of value internally. The pulp that you strain out can be used as a face mask, a poultice, or for making paper. Drink the juice while it is fresh and experience a subtle high of real energy from the hydration, liquid oxygen in the chlorophyll, and the enzymes entering your bloodstream.

Wheatgrass Mouthwash

2 ounces freshly juiced concentrated wheatgrass

Swish the juice in your mouth for ten to twenty minutes and spit out. The chlorophyll takes care of bad breath, cleans plaque and germs away from the gums, and alkalizes and remineralizes the mouth and teeth to prevent decay.

Wheatgrass Enema Implant

4 ounces freshly pressed concentrated wheatgrass juice
1 enema bag or bucket

Wheatgrass enemas are a wonderful support if on a juice fast. It is essential to continue to keep the bowels moving to eliminate waste material that is being detoxified as part of the cleansing fast. Using warm water, preclean the colon by taking water into the colon as you would in a normal enema. Release the water into the toilet. Place the wheatgrass juice in the enema bucket or bag and infuse the fresh juice into the colon by positioning the bucket or bag 2–4 feet above the body to allow gravity to deliver the juice. Hold the juice in the colon for as long as possible, ideally about fifteen to twenty minutes. During this time, lift up the pelvic area on a small bench or rolled-up towel and massage the intestinal area from right to left. When ready release into the toilet. There is a great sense of relief with freeing the excess that may be lingering inside the colon.

Wheatgrass Pulp Paper

1 cup wheatgrass pulp, leftover after making wheatgrass juice
½ cup flaxseeds, soaked
1 cup shredded paper

Optional coloring:
1 teaspoon turmeric (for yellow color)

½ beet (for red color)
2 ounces fresh wheatgrass juice (for brighter green color)
1 teaspoon lavender or dandelion flowers (for additional beauty and charm)

The pulp of wheatgrass juice is a superior ingredient for homemade paper. The green color eventually disappears after exposure to sun and time; however, the fibers are strong enough for the paper to be used in creating personalized cards. Blend all ingredients in the blender with plenty of water so as not to strain the blender. Remove and press onto a screen, allowing the water to drain out of the pulp. Place in the sun or in a dehydrator until dry. Remove, cut into preferred sizes, and use for decorative and festival cards or celebration paper.

KNOTWEED

May knotweed cultivate gratitude, grace, and generosity toward our natural environment.

“Knotweed is a wild buckwheat
Grows low to the ground and it’s hard to see it
It’s nutty, and it’s special indeed
The funny thing about it, it’s not a weed!”

Knotweed

Family: Polygonaceae

Latin Names: *Polygonum aviculare* (*Polygonum* means “many knees” or “many joints” and *aviculare* comes from *avis*, meaning “bird” because the leaves are pointy like a bird’s beak)

Related Useful Species: Chinese knotweed (*Polygonum multiflorum*), smartweed (*P. lapathifloium*), swamp smartweed (*P. coccineum*), Japanese knotweed (*P. cuspidatum*), lady’s thumb (*P. persicaria*), bistort (*P. bistortes*), alpine bistort (*P. viviparum*), pepper smartweed varieties (*P. punctatum*, *P. densiflorum*, *P. hydropiperoides*), wild black buckwheat (*P. convolvulus*)

Global Common Names: English (knotweed, knotgrass, joint grass, doorweed, nine-weed); Lebanese (farfeen); German (vogelknterich); French (renouée des oiseaux); Spanish (centinodia); Chinese (bianxu, fo-ti-teng, ho shou wu); Vietnamese (rau dang); Japanese (henchiku)

Knotweed

Description

Prostrate knotweed is a type of wild buckwheat that grows low to the ground and creeps along the soil. One of knotweed’s common names is doorweed because it is a plant that we walk over, step on, and easily overlook. One

plant can cover over a meter of ground from the same root. It is a primary succession plant that finds its niche in barren soils and thrives in direct sun and will rarely be in shady places. It is found growing across the globe, establishing a new ecosystem for new life.

Knotweed reclaiming barren ground

Knotweed is a wiry annual with swollen joints at each “knot” place where the plants grow into a new leaflet stem. The whole plant branches into multiple stems, each with flowers at the node or joints. The flowers are miniature reddish to white blooms with five tiny petals that are sometimes hard to see. The leaves are smooth on all sides, long, narrow, and lance shaped. They narrow at the end attaching to the stem, where there is a brownish sheath and knot. The leaves form on alternate sides of the stem along the whole length of the plant. The fruits of knotweed ripen into a single seed, which is nutlike, nut brown in color, and flattened on three sides.

Knotweed is bisexual and can self-pollinate, although insects also pollinate the sweet flowers. Its root is a taproot that ranges in depth from 2 inches to 3 feet. The plants can be very well established in places, making them hard to pull out.

Knotweed can grow in very inhospitable soils, including those that have been contaminated by petroleum products and mine tailings. It can grow in soils high in salts and heavy metal contamination. In Iran, knotweed was the one plant that could still thrive in lead and zinc mine waste pools with high

levels of cadmium, copper, iron, nitrogen, lead, and zinc. In China knotweed was able to grow well in very acidic soil with pH of 3.5. Knotweeds are one of the first plants to regrow after a fire. In Kansas, knotweed seedlings were sprouting two months after a prescribed fire. After an extremely hot fire in California of high-density chaparral bushes, knotweed grew back within one year. Knotweed is one of the important species that regenerates the Earth by keeping water in the ecosystem and the ground from drying out and blowing away, composting its leaves and stems each year, and breaking up compacted and compromised ground.

Japanese knotweed (*Polygonum cuspidatum*) grows from shoots sprouting up from long underground rhizomes and can grow into thick stands that are over 10 feet tall. It is edible when the young shoots are harvested and prepared like asparagus. The roots are also very valuable in the treatment of lyme disease. Timothy Lee Scott, author and Chinese medicine practitioner, highly values the roots in herbal preparations. Japanese knotweed roots contain more resveratrol than any other plant studied. Resveratrol is widely utilized for its antiaging qualities.

Chinese knotweed (*P. multiflorum*) is a perennial vine native to China growing from a woody tuber with arrowhead-shaped leaves. A similar perennial variety, swamp smartweed (*P. coccineum*), loves moist soils and has pinkish flower spikes with narrow leaves ending in a point. Wild black buckwheat (*P. convolvulus*) is an annual low-growing vine with heart-shaped leaves and very edible seeds. Alpine bistort and bistort (*P. viviparum* and *P. bistortes*) have a white flower cluster at the end of a stalk and an edible pink root. All the various knotweed species offer amazing resources for food and medicine to humanity.

Wild black buckwheat

Current Uses

Prostrate knotweed holds my deep respect because it can be found when nothing else is growing. It has always caught my eye in my plant classes and personal wanderings because I commonly find it in the most random and inhospitable places. I gather the plants throughout their growing season and appreciate knotweed because it is hardy and can handle abuse, both from lack of optimal soil conditions and from trampling. The young plants are still tender and green in the early spring and summer. Although they are not bulky in their nature, they taste mildly delicious and can be added to almost any meal to increase the nutritional content and value. The flavor is very similar to the more common crop of buckwheat. The wild seeds are greater in nutritional value than the cultivated buckwheat and can also be used in making any kind of bread, pancakes, cereals, or crackers.

When there is a crop of knotweed in a clean area, I harvest it in quantity to use some fresh in my meals and allow the rest of the plants to dry. If I gather knotweed early in the season the plants will mainly be the leaves, stems, and flowers—but if I collect them later, the plants will also contain the valuable seeds. Many of them will naturally fall out onto the drying mat or in the paper bag depending on the drying method. Drying in a paper bag is a great way to gather the seeds with the least effort. The seeds make a

special crunchy addition to a salad. Even if I only have just a handful of knotweed seeds, I will sprinkle them into dishes or grind them in a coffee grinder and include the flour in my homemade recipes to increase the nutrition of any meal.

Alpine bistort

A high alpine variety of knotweed, alpine bistort (*P. viviparum*), taught me a huge lesson one year. Each year for over twenty years, I have taken a solo walk about in the mountains where I center and renew my inspiration for being alive. In my earlier hikes, I would bring at least some food, usually in the form of some apples and avocados. One year I was hiking to Telluride, Colorado, to teach at the Telluride Mushroom Festival. I had brought several apples and avocados just in case. I love hiking and eating the wild harvest but I felt that I needed to bring some fat in the form of avocado to provide me with the necessary nourishment to get me through the strenuous hike. That year, in 2008, I hiked over a mountain pass to camp near a high alpine lake, Columbine Lake. All around the lake, at 12,000 feet of elevation, I discovered a huge patch of alpine bistort. The plants were all in seed, perfectly ready to drop and fall out into my hands. I spent about an hour gathering seeds and was able to collect a large enough amount to fill a bowl that I could easily share with the participants at the festival. I ate as many as I needed and realized that a little went a long way. I didn’t need to eat that

many to feel fully nourished. They were packed with nutrition. I ate them raw right off the plant by pulling the seeds free with my teeth. In gathering a larger amount to share, I ran my fingers over the flowering stalks of the plant and the seeds fell effortlessly into my bowl. I shared the knotweed seeds in a wild salad for an event dinner at the festival after completing my hike.

Telluride Mushroom Festival salad

It was the high alpine knotweed that taught me there is so much abundant nutrition in the wild woods to nourish my journeys, and from then on I took a leap mentally and realized that I did not need to bring any additional food on my walkabouts. The seeds were such a great source of carbohydrates and fats that I let go of the fear that I would not have enough sustenance on my long hikes, and I now trust fully that what I need is available to me. Part of the journey in my letting go of this crutch is to embrace the realization that nourishment comes in many forms; I can receive energy from the smallest flower, the rain, breathing, the rising sun, a berry or leaf. Of course I do choose to take my longer walkabouts during the height of berry season. One year during a ten-day walkabout, I ate nineteen different kinds of wild edible berries in one day.

At the Turtle Farm another variety of knotweed has become a welcome and well-established resident, swamp smartweed, (*P. coccineum*). The variety we have at the garden is delicious when younger and tender. The

slightly sour but pleasant flavor indicates the high content of vitamin C. If my tongue enjoys the flavor, I eat them; if the flavor starts to repel my tongue, I stop. As the plants get older, they can develop an astringency that is less appealing to the mouth and palate. We let them go to seed at that point. When they are younger, however, the leaves grow in such quantity that we can harvest a bounty of them for making green chips.

Smartweed harvested for green chips

Our green chips are often made with smartweed leaves as one of the main greens. We may also add amaranth greens, elm leaves, or hollyhock leaves to the mix. After harvesting a large bowl of greens, we marinate them with a delicious sauce, massage the flavors into the greens, and dry them to make a high-quality chip for a snack. This is one of the most popular treats that we include in our wild CSA program bags.

The roots of our variety of smartweed growing at the farm are long rhizomes that spread easily underground in moist soil such as the garden beds. The roots are pink and very astringent. The roots heated in water as tea make a powerful facial wash and addition to bathwater for toning the skin and removing wrinkles and blemishes. The root tea also makes a very useful hair wash for strengthening the hair follicles; the Chinese knotweed is used for hair regrowth and turning the hair from grey back to its original color. Medicinally this plant supports toning the kidneys, eliminating toxins,

increasing fertility, and ceasing early signs of aging. I use the roots to make a mild-tasting tea that is pleasing to my tastes and sustaining to my health.

As I was doing research for this book on the benefits of knotweed, I discovered documentation about a Chinese man who was recorded to have lived an exceptionally long life in good health. He was a professor much of his life and taught about longevity. One of his daily practices was to ingest Chinese knotweed. As I further looked into Chinese knotweed, I found it was a very close cousin to our wild smartweed on the farm. Since then, I have been appreciating the smartweed in my garden as an incredible resource. This has given me more motivation to harvest the leaves, roots, and seeds and integrate it into my meals and personal care.

Smartweed at the Turtle Lake Community Farm

History

Knotweed originates from Eurasia and has been a primary food for humanity since recorded time. The two-thousand-year-old Tollund Man's last meal included knotweed seeds. Other Iron Age people have been excavated in bogs with similar seeds discovered in their bellies. Vegetarian grain gruel was a common meal when fruit and other foods were not available. Knotweed seeds, along with a variety of other wild and cultivated grains, provided a complete source of protein, carbohydrates, and fats. According to the seventeenth century botanist and astrologist Nicholas Culpeper,

knotweed is ruled by Saturn and Capricorn. In more modern cultural lore—the Harry Potter stories—knotgrass is a plant of magical proprieties. It is an essential ingredient of the Polyjuice Potion and in brewing Knotgrass Mead.

Knotweed is not only food for humans but for many animals and birds. In the stomach of a prairie dog, a scientist found more than twenty thousand seeds of knotweed. The Vietnamese have used it in soups and dishes since recorded time, and in Greece knotweed is recognized as an important honey plant because it produces a lot of nectar that bees harvest for their production of honey.

The medicinal benefits of knotweed were first recorded in China in 713 AD. Chinese knotweed (*P. multiflorum*) has a story behind its common name *ho shou wu*: "Mr. Ho's hair is black" (*shou* means head, *wu* means black). A man, at the age of fifty-eight, had been impotent his whole life and turned to drinking. He came home drunk one night and fell asleep outside. When he woke he noticed two shoots in the field several feet apart had become tangled around each other. He found this interesting and dug them up. He asked everyone in town what plant this was. A jester told him that since he was impotent, old, and childless, perhaps this plant was his medicine. The man dried the plants, ground them to a powder, and began taking it. After seven days he remembered the principles of human life. He felt his strength and sexual desire return. He soon married a widow who bore him a son. His youthful appearance came back and his hair turned back to black. Over the years he had many more sons and daughters and lived to be 160 years old.

Edible Uses

The whole plant of knotweed is edible from the upper parts of the leaves, flowers, and stems to the root. The young greens and stems are great diced in salads and can be added to water and blended into juice. Later in the season knotweed produces an edible seed very similar to the cultivated buckwheat groat (*Fagopyrum esculentum*). Wild knotweed is often richer in nutrients than the commercial variety. Studies in China compared the nutrient levels of a cultivated crop of Chinese smartweed and wild Chinese smartweed, and the wild variety was remarkably higher than the cultivated.

The seeds are three-sided brownish triangles that fall off the stem in the later months. When gathering knotweed to use for later, dry the whole plant.

If the plant has already matured into the seed stage, the seeds will fall off later in the drying process. The seeds can also be gathered on the plant later in the season by hand. It can be a time-consuming process—but what a joy to have even a small amount of potent seeds to include in your diet.

Kailas discovering knotweed

One way to use knotweed is to harvest the whole plant, dry it, and grind the stems, leaves, roots, and seeds together to make a green, high-protein staple food to add to recipes. The whole dried ground plant makes a great addition to flour for making bread, to cereals for breakfast, and really any recipes to offer a bonus of healing nutritive support. The plant is thin and wiry but when blended fresh or dried it becomes very palatable and delicious to eat. Once dry it grinds up easily. By including the whole plant, the highly nutritive components of the seeds are incorporated into the food. The taste is lightly nutty and quite mellow and delicious.

Knotweed is rich in carbohydrates, fats, fiber, and protein. It contains ample amounts of minerals including calcium, phosphorus, potassium, iron, magnesium, sodium, zinc, and a plethora of vitamins such as thiamine, riboflavin, niacin, and B vitamins.

Medical Actions

- Anthelmintic: destroys parasites
- Anti-inflammatory: reduces swelling and inflammation of the tissues
- Aperient: treats constipation and increases bowel movements
- Astringent: tightens, constricts, and tones while reducing secretions and discharges
- Cardiotonic: stimulates the heart
- Cholagogue: increases flow of bile from gallbladder into the duodenum
- Diuretic: increases the flow of urine and secretions
- Emetic: causes vomiting
- Emollient: softens and soothes the skin
- Expectorant: removes mucus from respiratory passages
- Febrifuge: reduces fever
- Hemostatic: stops bleeding
- Lithontripic: dissolves kidney stones
- Vasoconstrictor: increases blood pressure
- Vulnerary: treats or heals wounds

Medicinal Uses

Knotweed is particularly beneficial for tightening the gums and healing gingivitis. The whole plant, root and all, can be made into a tea and gargled or blended with water and strained. It decreases bleeding and inflammation associated with compromised gums. The flavonoids found in knotweed increase capillary resiliency while having a cortisone-like effect on the gum tissues. It is also documented that it reduces plaque adhering to the teeth due to inhibiting the metabolism of glucose, similar to the action of sodium fluoride.

In traditional Chinese medicine, knotweed has bitter and cool properties and is associated with the bladder meridian. It is taken internally to treat respiratory conditions such as bronchitis, cough, and inflammations of the

mouth and throat; it has also been approved by the German Commission E for these conditions. In addition, it is used to treat certain skin disorders and internal parasites. In homeopathic applications, knotweed is used for rheumatism of the fingers. Knotweed is a thickener of blood—a blood coagulant helping ease internal bleeding. As a poultice, it also stops bleeding externally. It contains flavonoids, silicic acid, tannins, hydroxycoumarins, and lignans. These compounds help reduce inflammation and relieve congestion.

Knotweed is most commonly taken as a tea. The whole plant is useful to dry for the winter and utilize throughout the season. To prepare it for the winter, simply dry it and store in a glass jar or paper bag in a cool and dry place. The tincture is also an effective way to preserve its medicinal benefits.

Externally, knotweed is applied as a poultice for cuts, swelling, and inflammation. Internally, it tones the digestive tract and urinary system. The tincture and tea when taken orally ease pulmonary complaints because of the silicic acid content, which strengthens connective tissue in the lungs. The tea is used by pregnant women to ensure the baby's health and to prevent premature births. It is mild and effective for a gentle toning of the female internal organs. The tea is tightening and toning for the bladder and urinary system. Drinking the tea eases painful urination and stomach aches.

Chinese knotweed (*P. multiflorum*) is highly prized for longevity and endocrine regeneration. It was the most commonly prescribed single Chinese herb in 2002 for insomnia. Chinese knotweed is believed to able to rejuvenate the body's youthful qualities due to stibene glycosides, chemicals similar to resveratrol. Supplements of Chinese knotweed extracts have been found to improve learning and memory ability and reduce brain pathology. In a study in 2006, the glycoside in Chinese knotweed prevented the early stage learning-memory deficit in Alzheimer's disease and also reversed the later stages of learning-memory deficit. It improved the fluidity of mitochondrial membranes. Another study in 1994 has shown that extracts of Chinese knotweed were found to be effective in reducing tumor incidences.

Recipes

Knotweed Bread

1 cup dried knotweed, whole plant

1 cup oats
1 cup cashews
1 teaspoon salt
2 tablespoons coconut butter
2 tablespoons honey

Grind the dried knotweed in a coffee grinder or mortar and pestle until it is a fine powder. Add all the ingredients to a food processor and grind until the mixture gains a doughlike consistency. Shape into a loaf and dry in the sun for one day or a dehydrator for several hours until firm. This bread is a quick and easy way to get a dense nutrient load to the body for optimal functioning and energy.

Knotweed bread

Knotweed Coconut Curry Soup

1 cup fresh knotweed
1 cup coconut shreds
1 avocado

1 teaspoon curry powder
1 teaspoon chili powder
1-inch piece fresh ginger
3 tablespoons mellow white miso
2 cloves garlic
4 cups water
½ cup scallions, diced

Set aside the scallions and place the other ingredients in a blender. Grind until smooth. Warm the soup on stove or fire until perfect eating temperature. Add the green onions before serving. This is a warming, slightly stimulating, and toning soup.

Knotweed Salad Dressing

1 cup fresh knotweed
3 tablespoons olive oil
3 tablespoons balsamic vinegar
2 tablespoons honey
3 tablespoons water
3 tablespoons tamari
1 teaspoon oregano
1 teaspoon thyme
1 clove garlic

Blend all ingredients in blender until smooth. Knotweed is a nutritious part of a salad by adding it as the dressing to a bowl full of other wild greens.

Knotweed Banana Crepes

Crepe Wrap

1 cup fresh knotweed
4 bananas
1 cup figs, soaked
1 teaspoon cinnamon

Crepe Filling

1 lemon, juiced
1 cup cashews

1 cup fig water
2 tablespoons honey
1 tablespoon vanilla
1 cup seasonal fruit such as plums, cherries, apricots, peaches, or blueberries

Blend the ingredients of the crepe wrap together in the blender until smooth. Pour mixture onto dehydrator sheets and dry for eight hours. Peel off when dry and set them aside; they should be flexible. Blend the filling ingredients together to make the creamy filling. Use only half the fresh fruit in the filling; dice the other half and sprinkle on top of the crepes before serving. This is a wild decadent treat to be shared.

Knotweed banana crepes

Knotweed Cinnamon Citrus Tea

½ cup fresh knotweed
1 quart water
1 cinnamon stick
1-inch piece ginger, diced
1 whole orange, sliced with peel

2 tablespoons honey (optional)

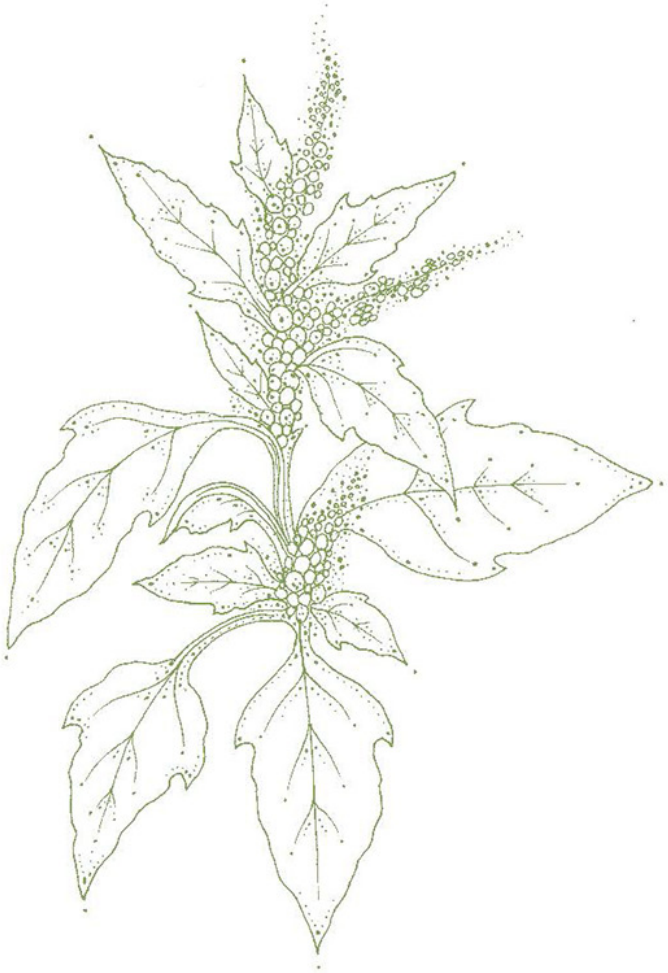
Add all ingredients to a pot and simmer for a few minutes. Turn off heat, wait for another five minutes, and enjoy this healing and delicious tea anytime of the day.

Knotweed Tincture

1 quart fresh knotweed
1 quart hard alcohol (I prefer to use homemade hard apple cider or a local distilled liquor, but any high-proof alcohol will work)

Mix the fresh herbs and alcohol and let steep for three to six weeks.

LAMBSQUARTER



May lambsquarter reawaken our noble wild indigenous roots.

“Then there’s lambsquarter and amaranth
Guess which one makes the quinoa plant?
Both these two are high in protein
Eat them for muscles like Mr. Clean!”

Lambsquarter

Family: Chenopodaceae

Latin Name: *Chenopodium album* (*Chenopodium* in Greek means “goose foot” and *album* in Latin means “white,” referring to the whitish coating on the leaves)

Related Useful Species: Pitseed goosefoot (*Chenopodium berlandieri*), epazote (*C. ambrosioides*), nettle-leaf goosefoot (*C. murale*), quinoa (*C. quinoa*), kaniwa (*C. pallidicaule*), orache (*Atriplex hortensis*)

Global Common Names: English (lambsquarter); Hindi (bathua); Greek (krouvida, psarovlito); Mayan (huauzontle); Spanish (quelite); Andes (kaniwa)

Lambsquarter

Description

The genus *Chenopodium* contains about 170 species, all of which are edible in some form. *Chenopodium album*, which may have originated in India, is now a commonly found species across the globe. Another variety that closely resembles *C. album* is *C. berlandieri*, which is considered native to North America. The two species have been known to cross-pollinate, creating a hybrid.

Lambsquarter is a self-seeding annual plant that regrows easily from its

effective dispersal of seeds year after year. The seeds can lay dormant for many years and still be able to take root when the conditions are ripe; there are lambsquarter seeds that have sprouted after being dormant for over forty years! Lambsquarter will thrive in disturbed soil such as annual vegetable gardens as well as neglected fields. It can handle a variety of elevations, commonly found growing at sea level and at 10,000 feet in elevation in the San Juan Mountains of Colorado. In the Andes of South America, there is a variety of lambsquarter that grows at over 12,000 feet.

Lambsquarter thrives in all types of soil with varying pH levels. When the soil is fertile, it will grow large and full in size and form very attractive stands of vegetation. However, it can also handle even the worst of soils. It has even been known to survive on coal-pit heaps. It is very cold hardy and therefore one of the later weeds to be killed by frost. When you see a large stand of healthy lambsquarter, it is likely that the soil is in good condition. Its presence is one of the best indicators for vital soil. Lambsquarter makes a fantastic cover crop and natural fertilizer because of its dense nutrient content. If it is turned under when still young, it rebuilds healthy fertile soil as it composts and redeposits its minerals back into the ground.

Three varieties of young lambsquarter

The different species of lambsquarter can have a variety of looks. It grows erect from 1 to 6 feet tall, but generally ranges around 3 feet tall. The

stems are angular, sturdy in nature, and stout in shape. The color of the stem can vary between light silvery green to reddish or purplish. Sometimes the stems have characteristic reddish streaks that follow up the stalk. The plants grow with many branched stems, giving the whole plant a bushy appearance. Because of this, you can often find lambsquarter growing in large clusters or even sizable colonies because the seeds fall and sprout right beneath the mother plant. This makes harvesting rather easy when you find a good crop of them.

The young sprouts have an opposite-leaf pattern, growing on opposite sides of the stem from each other with silvery-green leaves, sometimes with a reddish tint. As the plant matures, the leaves form an alternating pattern up the stem. The leaves have a unique whitish dust on the underside as well as the tops of the younger new leaves. The white dust is a natural mineral accumulation that gives lambsquarter exceptional nutrition and flavor. The name *album* was given because of this white sheen on the undersides of the leaves and new shoots.

Whitish dust on the new shoots

The young leaves are diamond shaped, like an arrow with wings coming out from the edge nearest the stem and ending in a point. The edges are slightly jagged, with two distinct lobes at the wide end of the diamond. As

the plant shoots up into its flowering stalk the leaves get smaller and less defined.

Lambsquarter produces nonshowy flower clusters that are whitish green to light yellow in color. The flowers are not easy to see but hidden in clusters at the top of the stem. The flowers do not have petals and are most commonly pollinated by the wind, although insects also play a role in their sexual reproduction.

The seeds form from these flower clusters later in the season at the terminal end of the stalk and are released later in the fall or winter months in abundance. The seeds of *C. album* are tiny and black; there are as many as one hundred thousand seeds per plant. They are highly nutritious and packed with protein and essential vitamins and minerals. Each seed is coated by a mealy, whitish-green sheath.

Lambsquarter going to seed

Lambsquarter roots are generally about 2 to 6 inches long and pull out of the ground if loose or wet. If they are growing in dry and compacted soil, the stems will often break when pulled, leaving the root still intact underground. The root will commonly regrow new leaves if it is left in the ground during the season and branch out in a circular pattern with many smaller taproots. The root is a whitish-colored taproot with a soapy nature if pounded due to the presence of saponin.

Although everyone may not recognize its full significance yet, the potential of lambsquarter as a valuable resource is almost unlimited. Once it is positively identified, lambsquarter is easy to find in common grounds, gardens, and neglected areas, making its beneficial qualities easily

accessible. May we each seek out this plant and utilize it often as part of our daily lifestyle to increase our quality of life.

One of my favorites

Current Uses

Lambsquarter is one of my favorite greens to arrive in the early spring season. Its greenish leaves with a hint of white dust often show up way before most of the other garden seeds have even been planted. Nature does all the work, having already sown the seeds the previous fall. The local wild seeds are so acclimatized to the region that they know when to sprout at the earliest possible time to make a successful harvest the next year. We benefit from their brilliance! Lambsquarter is our local version of wild spinach. When compared side-by-side with store-bought varieties of spinach, the lambsquarter outshines other greens in every category, including convenience. Instead of taking the effort to go to the store to buy spinach, we can just gather it outside our door for free!

At the Local Wild Life Café, we serve a local green salad year-round. Throughout most of the winter months the majority of the salad is made from our inside-grown microgreens. Lambsquarter is such a blessing to our meals, offering its fine spring greens as a new outside addition to the salad

when not much else is available yet. It is typically one of the first crops we harvest from the garden, and is often in its prime when we are ready to transplant other vegetables, motivating us to harvest it in large amounts to make space for the next wave of food in our evolving garden.

Purple orache

There is a variety of lambsquarter called orache (*Atriplex hortensis*), that is one of my favorites! This is a slightly purple-tinted variety of lambsquarter. A friend gave me some seeds many years ago and each year it reseeds itself so that I have never had to replant it. It is truly my favorite spring vegetable in my garden. I usually will not prepare a garden plot until most of the orache has been properly harvested. This also means that I need to wait until it is at its ideal growth stage before I shift the purpose of the garden toward another crop. The green-and-purple orache leaves tend to be delicious even after they shoot up and begin producing flowers. The leaves farther up the stalk are not as big and juicy, but they still have great value. The longer the plant develops its seeds, the less vital the leaves are. Let your tongue be the guide.

I find it most delicious when it is still quite young, before it goes into the flower stage. At this time, I do my best to harvest as much of it as possible. We harvest the greens for our winter food powder in early to midsummer

because if we wait until the fall (like we can for some of the other greens like dandelion and mallow) the lambsquarter greens will be mostly smaller, faded greens. We gather the greens for fresh foods like salad, pesto, juices, and additions for our crackers, onion bread, and cookies. The excess we dry and store in a jar for winter powders and a dry green addition to some of our recipes like mint magic balls and other wild food treats. Adding lambsquarter into recipes vastly enhances the nutrition available in the dish. Like spinach, it is packed with chlorophyll but has value that goes far beyond any cultivated spinach variety. In addition, it is free and often found in almost everyone's garden in the early spring season!

Here is a picture of wild lambsquarter still growing in October in northern Finland in the town of Enontekiö—in the Arctic Circle, at 68 degrees north of the equator.

Lambsquarter in Finland

In the fall, we harvest the seeds. Some varieties of lambsquarter seeds are easy to remove from the chaff and others are much more challenging to separate. The varieties that come out easily are the ones we focus on for gathering the seeds for making our local variety of wild quinoa. *Chenopodium quinoa* is the South American “grain” called quinoa that is now commonly found in many stores for purchase. The quinoa seeds are actually psuedograins that make up their own category. They are a gluten-free alternative for making great recipes including cereals, ricelike dishes, and breads. Lambsquater is a complete protein, containing all eight essential amino acids, and its nutritional content surpasses most other grains.

It is a good idea to make sure the lambsquarter seeds are fully dry before storing. A safe way to do this is to place them in the sun for a few days on a plate or in a dehydrator overnight. Once fully dried, they can be secured in a glass jar and stored for use throughout the winter months. Even in the middle of the winter, lambsquarter seeds can still be contained in the dried stalks. Recently, in early January, I harvested several lambsquarter stalks and removed the seeds into a bowl. It was a wild variety with small seeds growing in an open field mixed with wild alfalfa. I used a screen to separate much of the chaff from the seeds, but I was not able to remove all of it like with purchased quinoa from the store. I made breakfast from it by cooking the grains in water. As it cooked, I removed more of the tiny remnants of plant material like leaves and twigs. It opened eventually into white little spirals similar to all quinoa when it is cooked and sprouted. In my experience, I find that each variety of wild lambsquarter seeds all taste different, some being more palatable than others. This batch tasted good at first, although not long after the first few bites I could detect an overly potent flavor and knew that only a very small portion was all that my body wanted. With many wild foods, there is a process of learning and experimenting with your local variety to get to know the quantity beneficial to ingest.

History

Lambsquarter was once thought to be a native of Europe and Asia; however, recent archaeological studies show that the seeds were stored and used by Native Americans (Blackfeet) before European trade had come to the

Americas. Archaeological evidence shows that lambsquarter has been used as a source of food since 6500 BC. It was one of the earliest plants to be domesticated in prehistoric times both in eastern North America as well as in Mexico and India. One popular domesticated variety is the modern pseudograin quinoa.

Lambsquarter seeds are one of the earliest crops found to be a staple of the human diet. A stash of the seeds discovered in several rock shelters in eastern North America was recorded to have been harvested back in 3700 BC. It has since been domesticated as a principal crop in the Americas and other continents.

Archaeologists identified lambsquarter seeds from carbonized plant remains found in storage pits and ovens on Roman sites in Europe. These seeds were mixed with other grains and are thought to have been stored there during the Iron Age around 1300 BC. The seeds have even been found inside the stomachs of human corpses naturally preserved in Danish bogs dating back to 8000 BC during the Mesolithic period. Lambsquarter seed stores have been found in many European Neolithic ruins and were also in the last meal of the Tollund Man, who died two thousand years ago in what is now Denmark.

I think the most significant story of how lambsquarter got its name is rooted in the Druid and Celtic traditions of celebrating the eight seasonal changes of the year. The seasonal cycle of celebrations marks the changing positions of the sun. The eight holidays mark the four main positions of the sun—summer and winter solstice and fall and spring equinox—with the other four holidays as the cross quarter marks in between each solstice and equinox (Beltane [~May 1], Lammas [~Aug 1], Samhain [~Nov 1], and Imbolc [~ Feb 1]). These cross quarter holidays are celebrated with other names such as May Day, Halloween, and Candlemass Day. Lammas, in early August, is the cross quarter time when the lambsquarter seeds are often ripe and ready to harvest. Another story around the name of lambsquarter is that wild harvested plants per weight have about the same amount of protein as a quarter of lamb.

Celtic Sun garden honoring the eight cross quarter holidays

Several species of lambsquarter have been domesticated in the South American Andes. Quinoa (*Chenopodium quinoa*) and kaniwa (*C. pallidicaule*) have been used as key food staples for protein in addition to vital sources of calcium and iron in the diet. The seeds are known to withstand the harsh conditions of the mountainous environments including high elevations, cold temperatures, and drought.

In many parts of India, lambsquarter greens are found growing even in the winter season and have been historically used for dishes such as soups, curries, and lambsquarter-stuffed breads. The seeds have been and continue to be used as an important food resource for Indian gruels called *phambra*. They are also traditionally made into an alcoholic fermented beverage called *ghanti*. *Ghanti* is made by combining the seeds of lambsquarter with local fruit and bottling the mixture for months to encourage an anaerobic type of fermentation process to occur. *Ghanti* is a locally made beverage most commonly still found in the Kinnaur district of Himachal Pradesh.

Edible Uses

Lambsquarter is exceptionally nutritious. As mentioned earlier, the whitish dust on each leaf is made up of mineral salts from the soil and is an indication of its mineral-rich value. Often the lambsquarter leaves will taste

salty and therefore make quite a nutritious salt replacement or addition to dishes! Lambsquarter seasoning is made easily by drying the leaves and mixing them with other spices (see lambsquarter spice recipe below).

Lambsquarter is packed with essential vitamins and minerals. For example, 3.5 ounces of raw lambsquarter, which is about 1 cup of greens, contains 73 percent vitamin A and 96 percent vitamin C of your recommended daily allowances suggested by the USDA. It is also a fantastic source of the B vitamins complex including thiamine, riboflavin, and niacin.

Wild lambsquarter vary in their tastes. The flavor is related not only to different species, but also to the stages of growth and to the soil conditions. In general, however, all lambsquarter leaves are edible. The wild greens can be used just like spinach. They can be eaten fresh in salads, juiced, and added to any recipes that call for greens. They are best eaten when younger, however; when the leaves mature with age, the flavor can change due to a greater potency of oxalic acids. I find that when lambsquarter has built up too many oxalic acids, I experience a slight burning sensation in the back of my throat. This is why I recommend tasting the leaves by themselves before harvesting any quantity of them. This is especially important when making green juices or smoothies. When downing a liquid in several gulps, your body does not have the time to tell you to stop.

Two varieties of seed heads • Photo courtesy of Kurt Blair

The seeds make a highly nutritious food staple for multiple uses in recipes. They can be collected and ground into cereal or used as flour for bread. By sprouting the seeds the nutrition is enhanced. Sprouting quinoa is easy and it is quick to grow. The seeds can sprout in one or two days. Add the sprouts to any meal to benefit from the rich nutrients. Lambsquarter seeds also make great microgreens. They start out small and frail looking but given time grow into healthy plants with delicious flavor.

The seeds can be cooked and eaten as a high-protein food similar to quinoa. Our bodies can produce fourteen of the essential amino acids, but eight of them need to be found in external sources. Lambsquarter is one of those valuable sources.

All lambsquarter seeds are edible; however, some are easier to use for a food staple than others. The wild versions have varying natures of seed production. Some varieties are easy to harvest and separate the chaff, while others are quite difficult. When possible, separate the seed from the outer layer and always taste the wild grains alone before adding any seasoning or

salt, to get the true taste of the food. This practice will protect you from overeating something that your body would normally tell you to stop eating.

Sprouted quinoa

Wild grains are more potent than domesticated grains and a small amount is often enough to sustain your energy. Another way to increase the seeds' resources is not to cook them, but instead to sprout them. Sprouting the seeds is a natural way to let the outer layer fall off on its own. Using lambsquarter sprouts is a way to increase seed benefits and sustain your winter storage to last even longer! If wild plants are potent already and go a long way, sprouted wild grains are even more concentrated in nutritional value and truly go the extra mile for supporting your optimal health.

Medical Actions

- Antianemic: reduces anemia by increasing red cell production
- Astringent: tightens, constricts, and tones while reducing secretions and discharges
- Antiscorbutic: provides vitamin C
- Antidiarrheal: alleviates diarrhea
- Anti-inflammatory: reduces swelling and inflammation of the tissues

- Stomachic: strengthens and tones the stomach
- Laxative: promotes evacuation of the bowels

Medicinal Uses

Lambsquarter is an important source of food that can be considered a key staple, while at the same time it is also an extremely valuable medicine. When the leaves are chewed into a green paste and applied to the body, it makes a great poultice for insect bites, minor scrapes, injuries, inflammation, and sunburn. The greens are beneficial for soothing arthritic joint pain when chewed into a mash and placed directly on the sensitive areas. The leaves support the decrease of pain by reducing inflammation and bringing about an increase of circulation.

Drying lambsquarter

A tea of the leaves is beneficial for diarrhea, internal inflammation, stomach aches, and loss of appetite. The tea can also be used as a wash to heal skin irritations and other external complaints. Soaking the body in bathwater with lambsquarter tea added will support skin health by toning and tightening the tissues.

The green leaves when eaten in their fresh raw state are particularly beneficial for supporting the healing of anemic blood conditions. The leaves are exceptionally rich in iron and help to increase blood cell count and overall vitality of the circulatory system. The greens and seeds are very high in protein and phenolic content, and also have significant antioxidant capacity for eliminating unwanted free radicals in the body.

The roots contain a significant amount of saponin, which creates a natural soapy quality when mashed or beaten. In addition to the roots being extremely useful in making a cleansing soap, the composition of saponin also creates a cleansing and laxative effect in the body when drunk as a tea. Lambsquarter root tea is helpful for removing excesses from the body by the way of assisting elimination.

Lambsquarter roots

The young greens, especially when tender in the spring, can be juiced for their calcium and vitamins A, C, and B complex in addition to vital enzymes, chlorophyll, and trace minerals. The juice has a gentle detoxifying nature. Lambsquarter is an important green in this day and age of accumulated pollution. The greens are valuable for purifying the body of unwanted toxins due to their exceptionally high chlorophyll content. The

chlorophyll binds with or chelates toxins that may be stored in fat cells and removes them in the urine. Our body is wise and tends to isolate toxins away from our vital organs by storing them in fat cells. When the toxins are released into the bloodstream it is key to have a source of chlorophyll to bind up the toxins until they are discharged from the body. We want to assure that they are not redeposited in the body while in the bloodstream. Fasting is a beneficial way to detoxify the body; however, because of the concentrations of petrochemicals found in our daily environment, it is wise to avoid fasting on water alone. It is best to have the support of wild greens in the form of dilute juices to protect our cleansing bodies from the potential side effects of environmental toxins causing harm on their way out.

The young lambsquarter green juice is delicious, but when the leaves get older, make sure to taste them first to know if the flavor is agreeable to you. The gentle astringent properties of lambsquarter make it healthy for tightening internal organs as well as externally for skin. The juice makes a beautifying and cleansing body wash. It is also a useful mouthwash for tightening the gums and eliminating bad breath.

Recipes

Wild Green Onion Bread

1 cup flaxseeds, soaked
2 cups water
1 cup sunflower seeds, soaked
½ cup quinoa, sprouted
1 onion
2 tablespoons honey
2 tablespoons dried lambsquarter greens or ½ cup fresh lambsquarter greens
1 teaspoon salt
1 teaspoon rosemary

Blend the flaxseeds with the water until broken down into a batter. Grind all the ingredients in a food processor. Mix in the flaxseed mixture and pour onto dehydrator sheets. Dry for approximately eight hours and cut into

rectangle bread shapes. Enjoy this flavorful delight as flexible bread for sandwiches.

Sprouted Lambsquarter Tabouli

2 cups quinoa, sprouted
1 cup parsley, diced
1 cup tomato, diced
1 cup cucumber, diced
½ cup scallions, diced
1 clove garlic, minced
½ cup mint leaves, diced
1 teaspoon salt
½ teaspoon pepper
2 cups zucchini, finely chopped
1 avocado, diced
2 tablespoons olive oil

Combine all ingredients in a bowl and allow the flavors to mingle for about ten minutes before serving. It can also be placed in the refrigerator and served cold.

Lambsquarter Green Quiche

Crust

1 cup raw buckwheat groats, soaked
½ cup quinoa seeds, soaked
1 cup cashews
1 teaspoon lambsquarter spice (see recipe below)

Filling

4 cups young lambsquarter leaves (can be mixed with other greens such as spinach, dandelion, or mallow)
1 avocado
½ cup lemon juice
½ cup tahini
1 teaspoon salt

Toppings (Optional)

Diced tomato
Baby wild microgreens
Edible flowers

Grind the soaked buckwheat with the cashews and spice in a food processor. Press into a pie pan and let dry in the sun while preparing the other layers. Add all the filling ingredients to a food processor and mix well until smooth in texture. Layer the filling into the crust. Add toppings if desired and either serve fresh, chilled, or warmed.

Quinoa Stew

3 cups quinoa
1 cup carrots, chopped
2 cups cabbage, slivered
1 cup potato, chopped
1 cup sun-dried tomatoes (and/or 1 cup red bell pepper)
1 tablespoon chili powder
¼ teaspoon cayenne pepper
½ cup miso
1 teaspoon dulse seaweed
1 red onion, slivered
3 cloves garlic
1 cup diced fresh lambsquarter leaves

Place all ingredients except miso in a Crock-Pot and cover with twice as much water. Set on low heat and allow the stew to simmer for one hour. Just before serving, add the miso and one cup of diced fresh lambsquarter leaves. Enjoy this hearty and complete protein meal, all in one stew!

Quinoa stew

Wild Seed Lammas Sun Bread

2 cups quinoa, sprouted
4 cups oats
1 tablespoon coconut butter
1 teaspoon coriander
½ teaspoon star anise
2 tablespoons honey
1 teaspoon salt
1 teaspoon cinnamon
1 teaspoon nutmeg
½ cup raisins, soaked

Grind all ingredients in a food processor until well incorporated. Roll into hand-sized loaves and place on a hot rock in the sun for one full day in the heat of summer around August 1 to celebrate the Celtic cross quarter holiday of Lammas! Lammas is the midway point between summer solstice and fall equinox. Turn your loaf over midway through the day to evenly “cook” your sun bread. If this is not possible, alternative options are to place the loaves on a flat rock placed on a woodstove, in the dehydrator at below 115 degrees, or in an oven on the lowest setting. The goal is not to cook the enzymatic life force out of the bread. It is a wise practice to maintain the

fluidity of wild aliveness in our food as much as possible. Invite your friends and family to celebrate this special bread with you to honor the time of year for the abundant harvest of ripe lambsquarter seeds.

Lambsquarter Green Salad

4 cups young lambsquarter greens, chopped
1 cup mustard greens, diced finely
½ cup wild edible flowers such as clover, mustard or dandelion
1 cup additional mild varieties of local greens such as lettuce or chickweed

1 cucumber, shredded
2 carrots, shredded
1 cup baby tomatoes, halved
1 apple, diced
½ cup quinoa, sprouted
½ cup sunflower seeds, sprouted

Dressing:

1 tablespoon lemon juice
1 tablespoon olive oil
1 tablespoon dulse seaweed

Combine all ingredients. Drizzle salad with lemon juice, sprinkle with dulse seaweed flakes, and add a splash of olive oil. Before serving, decorate with wild edible flowers such as clover, mustard, or dandelion.

Wild Paradise Energy Bar

1 cup figs, soaked
½ cup dates, pitted
2 tablespoons raw carob powder
½ teaspoon bee pollen
1 cup sunflower seeds, soaked
1 cup pumpkin seeds, soaked
1 tablespoon dried lambsquarter greens

Grind all ingredients in a food processor until they become a doughlike consistency. Shape into bars. Wrap individually and store in the refrigerator. They will keep for up to a month. This recipe is a favorite energy bar with the complete protein benefits of lambsquarter. It is delicious, easy to travel with, and offers exceptionally high vibration to any activity! Enjoy the day in its full paradise potential with these wild energy bars as your snacks.

Lambsquarter Spice

4 tablespoons dried lambsquarter greens
½ teaspoon dried powdered kelp seaweed
½ teaspoon dried dulse seaweed flakes

⅛ teaspoon cayenne pepper
½ teaspoon salt (optional)
½ teaspoon dried mustard seed, ground
1 teaspoon dried celery powder
½ teaspoon dried garlic powder
½ teaspoon dried lemon zest

Add all ingredients to a bowl, stir thoroughly, and store in a spice container to sprinkle onto food as desired. This spice can be made with or without salt. Depending on where you harvest your lambsquarter greens and which variety they are, they may be salty enough as they are without needing to add any additional salt. Either way it makes a delicious addition to most recipes. It offers a full range of flavors satisfying the palate while providing the body with the full rainbow of trace minerals for optimal health and beauty!

Lambsquarter Quinoa Wrap

When I challenged myself as a birthday gift with ingesting only the wild thirteen plants for two weeks, I came up with this wonderful simple recipe.

1 cup quinoa, sprouted
1 cup cauliflower, minced (or any other member of the mustard family such as cabbage or broccoli)
Large young lambsquarter leaves
Wild mustard greens, diced (arugula an option)
1 tablespoon mustard flowers

Prepare each wrap by placing a tablespoon of sprouted quinoa mixed with cauliflower on a lambsquarter leaf. Sprinkle on top a layer of mustard greens and flowers if available. Roll up into a delicious, nutrient-packed, wild lambsquarter wrap! This was truly one of my heartier meals that completely filled me up during my exclusive wild weed culinary adventure.

Lambsquarter quinoa wrap

Lambsquarter Soap

1 cup fresh lambsquarter roots, chopped
2 cups flaxseed water (soak 1 cup flaxseeds with 4 cups water for 8 hours)
Essential oil (optional)

The roots have a good source of saponin and can be made into a soapy liquid by blending the roots with the slimy water that is drained off after soaking flaxseeds. Flaxseeds are better digested when soaked first and the water, rather than being discarded, is best used to make liquid soap. When making amaranth flaxseed crackers, prepare the soap at the same time.

Cover 1 cup of flaxseeds with 4 cups of water, stir together and soak for eight hours. Pour off water from flaxseeds. Blend flax water and lambsquarter roots together and strain out the pulp. This slimy, sudsy mixture can be used to wash the whole body or used for cleaning the home. Essential oils can be added after straining for the additional benefit of their aromatherapy.

Lambsquarter Shampoo

1 cup fresh lambsquarter roots, chopped

1 cup mallow
2 cups mallow water or flaxseed soak water
1 cup fresh aloe vera leaf, skin and all, chopped
A few drops of essential oils (optional)

In my experience, anytime I use wild plants as shampoo on my scalp, I feel instantly smarter when I get out of the shower. The wild intelligence seems to be penetrating through my head and awakening my brain into a clearer state of mind. Wild shampoo equals a wild brilliance and free willed wit!

Add all ingredients to the blender except the essential oil and blend thoroughly until frothy. Strain out all fiber and then add the essential oil and mix it in by hand. Use this shampoo while it is fresh and experience the full exhilaration of its wild aliveness! If it goes flat, blend the mixture again to recreate the frothy, foaming nature. It will keep up to one week stored in the refrigerator.

MALLOW

May mallow manifest world peace inside and out through inspiring devotional life habits.

“Mallow is mellow and good for your skin
It’s slimy and demulsifying
Blending the whole plant into a goo
To make your own lotion and shampoo”

Mallow

Family: Malvaceae

Latin Name: *Malva neglecta* (*Malva* originated from the Greek word *malkos*, which means “soft” or “soothing,” and *neglecta* means “ignored” or “neglected”)

Related Useful Species: Cheeseweed mallow (*Malva parviflora*), bull mallow (*M. nicaeensis*), dwarf mallow (*M. rotundifolia*), high mallow (*M. sylvestris*), marshmallow (*Altheae officinalis*), hibiscus (*Hibiscus spp*.), hollyhock (*Alcea rosea*), desert scarlet globe mallow (*Sphaeralecea coccinea*), okra (*Abelmosschus esculentus*), Indian mallow (*Abutilon incanum*), chingma (*A. theophrasti*); other important plants in the Malvaceae family include cacao and cotton

Global Common Names: English (mallow, cheese weed); Turkish (ebegumeci); Japanese (fuyo); Greek (malache, malakos); Chinese (donghancai); Arabic (khubeza); French (mauve); Syeria (khebbese, mashushe); Hebrew (malluach, chalamut); Spanish (malva); Russian (mal’va); Romanian (nalba); Pima Indians (tashmahak); Aztec (alahuaccioapatli, aalacton, hierba mucilaginosa); New Spain (malba); Lebenon (halawa)

Mallow

Description

The genus Malva contains over twenty edible species of herbaceous plants that include annuals, biennials, and perennials. The most distinguishing character of the whole family is that every part of the plant contains large amounts of mucilage. This trait makes the entire family uniquely special for food and medicine. Civilization is truly blessed by the gelatinous and graceful nature of mallow.

The common mallow, *Malva neglecta,* is a perennial herb and one of the more common mallows found all over the world in civilized areas. Mallows can handle neglected grounds found around the edges of lawns, gardens, and walkways but also will accept the opportunity of fertile loosely tilled soil. When mallow is found growing in compacted areas, the soil eventually becomes more aerated, fertile, and viable for other species to live. Mallow is one of the earliest plants to arrive in spring and the last to die back in winter. At the Turtle Lake Community Farm our honeybees are actively visiting the mallow flowers still blooming as late as November and even December when all the other blooms are gone and withered. In more temperate places mallow stays green year-round, offering its generous gifts all season long. It is extremely resilient to cold and can even survive under a blanket of snow in regions of harsh climate. Even where I live, at an elevation of 7,000 feet in Colorado, I can find it still green in the winter if I dig under the snow.

Mallow is also adapted to warm climates and can be commonly found in tropical areas, in grasslands, and in fields. Mallow is acclimatized in high elevations and can be found thriving from over 10,000 feet to sea level. *Malva neglecta* is a truly adaptable and resilient plant that knows how to survive here on Earth. It helps us be as resilient as she is! When we ingest her, we become soft and flexible, and the ease of flow moves through us gracefully.

Mallow is a slightly fuzzy plant that has a distinctive circular leaf with wavy palmlike lobes and deep main veins running from the center of the leaf out to the edges. The edges of the leaf have tiny jagged teeth. The leaves form in alternating patterns along the stem of the plant. The circular shape has a break where the petiole meets the leaf. The petiole is the part of the plant between the leaf and the stem. The petioles of mallow can vary in length from 1 to 12 inches long.

Mallows have five flower petals. The flowers of common mallow are whitish to light pink in color and have pink stripes running up each petal on

the flower. Mallow flowers are bisexual, meaning both the female and male reproductive parts are in each flower. In the center of the flower, the pistil sticks out. The ovary is located at the base of the petals and eventually ripens to produce the cheese wheel–like fruits. The fruits are circular and look like a miniature round block of cheese. Each fruit contains ten to twelve wedge-shaped seeds and is enveloped in a casing that can easily be peeled off. They are green and soft when developing and turn brown and dry when the seeds are mature. The seeds are small and black when fully developed. The seed wheel breaks apart into sections at maturity, releasing the black seeds individually.

Mallow flower

The common mallow is generally a low growing plant that has stems that can reach upward but are often found laying on the ground covering an area of 2 feet—all originating from one root. Later in the season, mallow can grow into a mass and reach about 2 feet high while still sprawling over an area 3 feet wide.

Mallow has a long white taproot with many spreading smaller root branches that can become well established in the soil, making it challenging to harvest. The older roots and main stems close to the ground can become

tough and slightly woody. When the ground is moist, such as after a good rain, the deep roots pull right out—leaving the harvester with a feeling of great satisfaction!

Mallows can be susceptible to several fungal colonies, including mallow rust, which causes dark orange colored bumps to appear on the underside of the leaves. The cause of this fungus is often from an overly moist environment and a dense thicket of mallow.

Other Malvaceae species' flowers can vary in color from darker tones of pink or red to white and yellow. The edible desert scarlet globe mallow (*Sphaeralecea coccinea*), found growing in drier desert regions, has distinctive orange flowers, whereas hollyhock and hibiscus grow with a variety of beautiful flower colors, from red to pink to yellow.

Current Uses

Mallow is an amazing plant being. It is subtle in its nature, often neglected, and yet contains a powerhouse of benefits.It has so many values for daily living. We use it in the Local Wild Life Café for our community's biweekly lunches in entrees like salads, pesto, juices, and even desserts. One of our popular dehydrated products available in bulk in local stores and markets is wild mallow sprouted rye breadsticks (see recipes at end of chapter). We also use mallow as an important ingredient in our winter green power. It is mellow with a mild flavor so it can be used in greater quantity than other wild foods. Another favorite local wild and living food treat that we have been making for over ten years is wild mint magic treats. These are little pumpkin seed–date balls rolled in sesame seeds. Again the magic comes from the dried powder of mallow, dandelion, and mint that is added into the mixture.

Mallow midwife to the kale plants

I find the mallows such an important resource in my gardens. I allow the mallow to continue growing until I am ready to harvest it for its roots or greens. I find that the other plants growing alongside the mallow are perfectly content to have additional diversity mixed in. When the mallow is ready to harvest, their deep taproots have already aerated the soil for the other plants and maintained the moisture in the soil while the cultivated plants are young and tender and susceptible to drying out. Mallows make a wonderful midwife to other plants; they prepare the space until the garden plants are a bit older to create their own lush environment. I let them get old enough to be of service before I harvest them. Then when the time is right, I pull them out—roots and all—and make a variety of food, medicine, and beauty recipes from their freely offered richness.

Mallow is celebrated in our community as one of the best skin repair remedies around. As a face wash and healing mask, it repairs sun damage and rejuvenates the skin. It makes a wonderful green facial mask that removes skin blemishes and irritation amazingly quickly. I often rely on mallow as a late winter plant, which will still be vital and green when most other plants have died back. This year in December we experienced a lower-than-usual snowfall and the mallow is easy to find and use in my juices,

baths, and lotions.

Hollyhocks (*Alcea rosea*) are a close relative of mallow and make a beautiful and delicious addition to the diet. We use hollyhock flowers for beautifying desserts. The leaves of hollyhock grow as large as a tortilla and we use them the same way. They make a fabulous wrap for a veggie burrito! We also use hollyhock leaves and flowers as part of our wild CSA program; the flowers make a gorgeous container to house fresh-picked strawberries from the garden.

Hollyhock strawberry basket

Instead of the traditional marshmallows found in the stores, we make a wild mallow marshmallow using *Malva neglecta,* the common mallow growing around our homes to make a tasty treat similar to the white commercial variety, but our local recipe is green rather than white and rather than leaving us sticky and gooey inside, it supports our vitality and pursuit of health and happiness!

History

Mallow is one of the earliest plants found in connection with humans and

has been written about for over three thousand years. Its greens were found in prehistoric human remains dated back to 14,000 BC. Mallow is understood to have originated in Northern Africa and Eurasia. It is one of the earliest plants recorded in literature for its useful qualities both as food and as medicine. In 65 BC, Horace, a Roman poet, refers to mallow as part of his food staples for primary nourishment. He includes mallow in his poem along with olives and endive as having enough sustenance to live on.

The name of mallow in both Hebrew and Arabic derived from the word *bread*. Mallow is mentioned in the Bible in the Book of Job as well as in the Mishnah; it is called by its Hebrew name, *chalamut*, which comes from *challah*, the traditional bread. In Arabic bread is called *khubez* and mallow is named *khubeza* after the little mallow fruits that look like round bread—as well as from its staplelike qualities of nourishment.

A variety of mallow species have been appreciated as an edible vegetable among the early Romans, who used the leaves and roots of mallow as one of their delicacies for both desserts and main vegetable dishes. It is also recorded as being a staple vegetable in China for over 2,500 years.

Prospero Alpini, a Venetian physician and botanist, in 1592 noted that mallow was eaten by the Egyptians and prepared as a dessert. The ancient Egyptians may have been the first to make marshmallow from the mallow plant, although the French also used the mallow to create a similar dessert called *pate de guimauve*, which combines the mallow root, sugar, and eggs. The ingredients were boiled down and frothed to create a spongy dessert. Today's modern marshmallow no longer contains any wild mallow and instead is filled with highly processed ingredients, including gelatin for texture.

Marshmallow (*Althaea officinalis*), in addition to being a dessert, has also been used as an important medicine in many cultures throughout history. *Althaea* means "healing" and *officinalis* means "medicinal plant." The Aztecs used mallow mashed with water for easing difficult delivery in pregnancy. Pliny the Elder, a Roman naturalist in 23 AD, also recommended mallow for childbirth and for healing sores of the skin. He was known to speak highly of mallow, indicating that merely a spoonful could free one of any disease. In mythology, Demeter gave Hercules a mallow cucumber dish, which became famous for helping quench his thirst and giving him strength.

Many native cultures around the world are recorded as using mallow as

part of their medicine dating back to ancient times. The Native American Arikara powdered the root of the globe mallow, *Sphaeralecea coccinea*, to drink for hemorrhaging. The Mountain Pima of northern Mexico use the whole plant to make a drink for enemas and stomach disorders. The Tarahumara of central Mexico traditionally heat the leaves with salt and drink the liquid to break a fever while at the same time washing their body with the same liquid. Mallow tea made from the leaves is given for easing headaches, gastrointestinal problems, and used directly on the body externally as a poultice for healing skin sensitivities. The Iroquois Indians made a cold water infusion with several plants including mallow and applied this liquid as a poultice to reduce swellings and heal broken bones. They also massaged it onto babies' swollen stomachs or sore backs. The Cherokee placed mallow flowers in oil and, with tallow mixed in, applied it to irritations and sores. The Mahuna tribe used the plant for painful congestions of the stomach. The Navajo make a cold tea of plants taken internally and use it as a lotion for injuries or swellings. They also use mallow as a laxative for young children. In New Mexico, it continues to be drunk as a tea for facilitating labor in childbirth and as a wash for skin irritations in infants.

In 1948 in Israel during the battle for Jerusalem, mallow became a survival food staple when other foods were scarce. Many of the poorer inhabitants of Syria subsist for weeks on wild plants, and mallow is one of the most common—available even in drought conditions. In Syria a dish called *khebbese* is made with mallow greens, bulgur wheat, olive oil, and onions. Mallow has been and continues to be an important food crop in Syria, where research is being done on using mallow for increasing agricultural biodiversity in dryland areas. Even beyond its uses as a survival food, it continued to be a popular ingredient in the cuisine in eastern Mediterranean countries such as Greece, Turkey, Syria, and Egypt.

A translation of an ancient epigram from Greek times acknowledges that mallow was planted upon the graves of the deceased because of the great nutritional values of the plant. Even the dead could benefit from feeding on these ideal plants. The mention of mallows being used as food and medicine goes back through antiquity. Mallow's value continues to be highlighted in past and present botanical and classical writers. Botanist Elmer Merrill, a highly regarded botanist who wrote *The Botany of Cook's Voyages* in 1954, referred to mallow by saying, "This plant is possibly the richest in vitamins

and minerals of any plant ever analyzed in nutritional laboratories of the world."

Edible Uses

Mallow is a divine food! It is a gentle tasting and yet powerfully mineralizing ingredient to add to any recipe and is a common sight in many vegetable gardens, making it an easy plant to harvest for many people.

Mallow is an amazing resource for making green juices, smoothies, soups, milks, and desserts, for thickening recipes, and as an ingredient for winter green powder. The fruits, also known as cheese wheels, make a delicacy as a pickled vegetable similar to capers. The mallows are some of the last plants to disappear in the fall and the first plants to come back in the spring, making them an abundant source of nutrition for daily use.

Mallow is very high in the complementary minerals of calcium and magnesium while also containing an exceptionally rich amount of potassium, zinc, iron, selenium, sodium, iodine, vitamin B complex, vitamin A, and vitamin C.

One fun characteristic of mallow is when the whole plant is diced and placed in water for several hours, the water turns into the consistency of egg whites. For vegan recipes mallow water can be used as a replacement for eggs.

Mallow leaves are sold as a commercial tea in many places around the world and taste as good as or better than commercial black tea. Mallow can be chewed when water is limited to maintain moisture in the mouth, keep fluidity in the system, and prevent tissues from drying out.

The root of mallow is an edible vegetable with many uses. It can be used like a potato and cooked into recipes. I blend the root with water and strain out the fiber to make a local variety of creamy milk that replenishes the body with vital nutrients absorbed by the deep roots in the soil. It provides quick and simple local nondairy milk for cereals and other recipes (see mallow root milk recipe at end of this chapter).

A root extract called *halawa* in Hebrew is made from boiling the root of mallow down into a sweet sticky substance and using it to flavor and thicken desserts and in the familiar traditional snack called *halva*. I use our local mallow to make a delicious raw mallow *halva* recipe using the whole plant

in its raw form. This was a featured treat at a recent holiday farmers' market (see raw marble malva halva recipe).

The leaves are a mild-tasting, nutritious addition to salads, casseroles, and soups. The whole plant when blended and strained makes a great soup base. The natural mucilaginous qualities give a texture and thickening quality to soups and other recipes that need a binding ingredient. We like to add mallow leaves to our crackers and breadsticks, as the natural gelatinous texture is effective for helping the dough stick together.

Hibiscus is a larger member of the Malvaceae family that grows in more temperate climates. It creates beautiful multicolored flowers that are commonly used as a tea in Mexico. When I spent several months surfing in a small village on the west coast, the gracious families who befriended me often served me the hibiscus flower drink called *jaimaca* when I came to visit. The bright red tea is sweetened with honey and served as a regular addition to the day for rehydrating and revitalizing. Hibiscus provides so many benefits to health in addition to its delicious flavor. It has astringent and antispasmodic qualities and is slightly diuretic and antibacterial. It also combats intestinal worms through the tannins' astringency. It is good to remember that when food is our medicine, we avoid getting sick!

Medical Actions

- Anthelmintic: expels parasitic worms from the body
- Antibacterial: reduces bacterial growth
- Anti-inflammatory: reduces swelling and inflammation of the tissues
- Astringent: tightens, constricts, and tones while reducing secretions and discharges
- Demulcent: creates a soothing protective film over mucous membranes
- Diuretic: increases the flow of urine and secretions
- Laxative: promotes evacuation of the bowels
- Emollient: softens and soothes the skin
- Expectorant: removes mucus from respiratory passages

Medicinal Uses

Mallow is an exceptionally useful medicinal plant due to its mild and mellow characteristics with potent and effective results. Mallow's nature is

demulsifying, slimy, gelatinous, and extremely effective in its power of drawing, clearing, lubricating, cleansing, soothing, and easing toxins out of the body. Mallow produces a large amount of mucilage, a thick, gluey substance produced in some degree by nearly all plants, composed of polar glycoproteins and exopolysaccharides. The mucilage plays an important role in the plant's ability to store water and food, seed germination, and for thickening membranes. This richness in mucilage makes mallow a very valuable medicine for humans. It contains roughly 35 percent mucilage, which soothes and lubricates inflamed areas of the body and forms a protective coat over aggravated mucous membranes. Tannins and flavonoids add to its healing effects. The fatty oil in mallow contains the beneficial oleic, palmitic, and stearic acids. It also contains asparagine, an astringent, which adds additional soothing and toning qualities to the skin and internal tissues.

Mallow is identified as an emollient, which softens the skin; an astringent, which tightens tissues; a demulcent, which coats and sooths mucous membranes; and also an expectorant, which removes toxins from the body. All these effects play a significant role in healing and beautifying our bodies.

When lightly crushed and placed in water, the mallow leaves and liquid become thick and slimy. This slippery thick liquid is the power of mallow as medicine. Internally it coats the mucous membranes, tissues, and organs and gently draws toxins from the body. Externally it is an effective wash and medium for a poultice to heal all types of skin problems from the severe to daily maintenance.

Mallow leaves crushed and applied as a slimy green poultice are very effective for drawing out boils, acne, and other skin sensitivities. The leaves mashed and lightly warmed are laid on the skin to help heal sprains, bruises, and other injuries. It is very useful in drawing out poisonous venom from insect bites, bee stings, and spiders. If stinging nettles or poison ivy irritate your skin, mallow is the friend to ease the pain, swelling, and itching.

In addition to mallow being a force in healing, it also works as a good pain reliever. The plant contains salicylic acid, the natural source of synthetic aspirin and an analgesic alkaloid. To relieve pain, it can be made into a tea or juice depending on if there is access to fresh or dried leaves. Mallow makes delicious and soothing tea for treating muscle pain and

tension headaches, and the poultice from the pulp can also be applied to the area of discomfort. Fresh juice is preferred if that option is available.

Whenever possible find and harvest the fresh plants to use for your medicinal needs because they contain the highest amount of mucilage. Drying mallow can remove as much as one third of the mucilaginous qualities, although using dried leaves will still provide many of the benefits such as the mineral content. However, when making mallow tea either make a Sun tea or use water that has been only lightly heated to steep it. Boiling mallow breaks down the valuable mucilaginous qualities almost completely and should be avoided if possible. Luckily fresh mallow is fairly easy to find much of the year in many places with moderate climates around the world. Even at 7,000 feet elevation, I still seek the fresh plants whenever possible. Sometimes I resort to finding a few mallows still hiding in the corners of my greenhouses when I am out of the dried leaves and roots during the snowy winter season.

Mallow water is one of the simplest ways to access the mucilaginous benefits of the plant. Drinking mallow water is an effective way to move phlegm out of the body; it is made by placing whole mallow in water and leaving it to soak as a cold infusion. Any part of the mallow can be used including the roots, stems, leaves, flowers, and fruits. I dice the whole plant as finely as I can before adding the slightly pulverized plant to a jar. I fill half the jar with mallow and the other half with water to achieve the greatest mucilaginous quality. It becomes ready to use after about an hour or two of soaking, although more time will continue to create thicker water. If you leave the mallow in the water for more than one day, it is necessary to place the jar in the refrigerator to keep it fresh. This water can then be used in many ways, from drinks to body washes to delicious recipes.

Mallow water in the making

Due to its ephedrine content, mallow possesses psychostimulant properties. Therefore, drinking mallow juice supports a clear mind and focus and brings an overall sense of well-being to the body. Mallow water is exceptionally beneficial to counteract the negative side effects of drinking caffeine. Caffeine tends to irritate the mucous membranes of the body and dry out tissues, and can also have the negative effects of creating stiff muscles and joints through the process of drying out and acidifying the body. Mallow water is an easy antidote. In my personal experience, I have periodically employed the stimulant nature of teas or cacao in my journey of writing this book. However, too much caffeine or chocolate can have its consequences. In my efforts to balance my body and sustain my ability to stay focused and healthy, I would drink mallow water after I consumed any type of stimulant. Instantly my body would breathe a big sigh of relief and begin to drop into a more relaxed and content state of being. I can easily feel mallow's kind and gentle nature coming to my rescue by lubricating and soothing my internal system. When I drink mallow water instead of green tea, I experience a far greater sustained focus!

As a daily routine, it is a wise practice to place even just a few mallow leaves and stems in drinking water, as mallow leaves shift the water toward a more healing alkaline pH. The subtle thick texture of mallow water makes it

gently lubricating to the throat. This protective lubricant assists the body in eliminating environmental toxins that we may encounter such as car exhaust or petrochemical residues. I continue to refill my water over the mallow plant as the day goes on. By placing the mallow water in the refrigerator at night, it can be reused for one more day.

Making juice is another method of using mallow that is incredibly beneficial for daily maintenance due to the chlorophyll gained from the greens. The juice is delicious and gently soothing while at the same time it eases stomach acids, bladder infections, colds, congestion, fevers, internal inflammation, and headaches.

Mallow calendula oil

Mallow juice is made by blending the whole plant with water in a blender and straining out the pulp. This is a way to quicken the extraction of the mucilage. If you want to achieve a thicker final juice, leave the water with the pulp for at least fifteen minutes before straining. If you use the whole plant, such as the woody stems and upper root, you will need to strain out the pulp before drinking, but if you just use the fresh leaves of mallow with water, leave them in. Drink the thick juice like a smoothie or a cold soup. Mallow creates fluidity in the joints, hydrates the organs and tissues, and clears out excesses and congestion. It is a gentle and incredibly effective

ally! The mallow pulp can also be used as a body wash or poultice or added to bath water. Dried mallow leaves can be added to homemade body oil to make a soothing balm for the skin.

Mucilage is a soluble fiber that absorbs large amounts of water and swells to form a soft mass in the intestinal tract, which helps prevent constipation. As a complex sugar it also coats, cools, and moisturizes inflamed tissues. The mucilage increases immunity by stimulating macrophages, the white blood cells that rid the body of bacteria and unwanted germs.

Mallow works wonders for effective weight loss. Drinking mallow juice and mallow water daily rids the body of excesses while creating a feeling of being nourished and fed. It gently stimulates the bowels and stops water retention. It is very beneficial for cleansing and strengthening the kidneys. Another active ingredient in mallow is pectin, a water-soluble fiber that supports healthy elimination and stabilizes blood sugar levels.

Both mallow water and juice make an effective enema rinse and colon implant. The gently lubricating mucilage from the mallow liquid helps clean out the intestinal walls by drawing out toxins and moving them out of the colon. The best way to prepare the mallow for enemas is to gather the whole plant fresh. Blend it lightly with water and let it sit half an hour at room temperature. Strain out the pulp, warm it lightly to body temperature, place the gelatinous liquid in an enema bag, and infuse it into the colon as you would a normal enema. Massage the intestines from right to left and hold the liquid in as long as possible, then release and expel excesses from the colon.

The German Federal Ministry of Health promoted “high mallow tea” for inflammation of mucous membranes in the mouth and throat, gastrointestinal regions, and upper respiratory passages. Mallow juice or cold infusion Sun tea helps rid the body of a sore throat, cough, or any lung congestion. It is effective both consumed and used as a gargle. As a demulcent, it draws and pulls out mucus and lubricates the tissues of the tonsils and throat. It has this effect both internally and externally. Mallow is a very gentle and powerful medicine at the same time; it works in an unobtrusive and steadily consistent way. It is so subtle that a person may not even feel the effects of it working and yet the problem disappears quickly.

Mallow fiber

Mallow is also a wonderful source of natural fibers. The wild Indian mallow (*Abutilon incanum*) and chingma (*A. theophrasti*) were brought to the United States for fiber. Cotton and jute are members of the mallow family and particularly known for their useful fibers. Litmus paper was originally made from mallow fibers. The older stems and roots are particularly good for making homemade materials like bracelets, cordage, twine, and rope. By soaking them in water overnight and lightly crushing the roots, the fibers break apart and can be woven together to make useful housewares like baskets, mats, and toothbrushes. I have been making my own toothbrushes with mallow root, which continues to be a fun experimental project that I am still perfecting.

Recipes

Mallow Seed Cheese

1 cup sunflower seeds, sprouted
1 cup almonds, soaked
1 cup mallow greens, chopped
1 cup mallow water
1 lemon, juiced
½ cup chives
2 teaspoons salt

Grind all ingredients in the blender or food processor until smooth. Serve over spicy flaxseed amaranth crackers (see recipe in amaranth chapter). Store excess in tightly closed jar and use within ten days.

Wild mallow sprouted rye breadsticks

Wild Mallow Sprouted Rye Breadsticks

1 pound rye berries, sprouted
1 pound sunflower seeds
3 cloves garlic
1 tablespoon salt

1 tablespoon caraway seeds
2 cups fresh mallow greens or ½ cup dried mallow greens
water to blend rye

What to do with extra mallow weed in your garden? Blend it into your bread dough. These delicious savory breadsticks are delicious dipped in avocado. Great flavor, great fiber, and great enzymes! Refer to the sprouting section in Chapter 2 for directions on how to sprout the rye berries. Fill blender to the 3-cup mark with rye and then add water up to the 4-cup mark. Blend the sprouted rye berries with the water. Strain out most of the solids; this will become the dough for the breadsticks. You can reuse the water to continue to blend the rest of the rye berries. Blend sunflower seeds dry in the food processor until they appear finely chopped and powderlike. In the blender, place the garlic, salt, caraway seeds, and mallow greens and blend using as little water as necessary. Mix all the ingredients into the dough and stir well. Use a frosting cone to squeeze dough into long breadlike strips onto dehydrator sheets. Breadsticks should be about ¾ by 4 inches. Place as many on each sheet as possible. Put in dehydrator at 115 degrees until firm.

Wild Mallow Marshmallows

1 tablespoon chia seeds
1 tablespoon mallow water
⅓ cup honey
2 teaspoons vanilla
1 cup mallow pulp and mallow water
1 avocado

Soak the chia seeds in the mallow water for half an hour. Add the thickened chia seed–mallow mixture to the blender and add the honey, the vanilla, and the mallow pulp and water. Add the avocado to thicken the entire mixture and blend well. Stop before you stress the blender. The thickness of the mixture must be firm enough to hold its form on the dehydrator sheets. Place a spoonful of the goo and sculpt it into the marshmallow shape you desire. Lay on dehydrator sheets in squares. Dry overnight until firm and chewy. Enjoy as a fine dessert with a thin layer of sweet cracker and a hunk of raw chocolate.

Mallow milk shake

Mallow Mint Ice Cream

- 2 cups mallow water (see recipe below)
- 1 avocado
- ½ cup honey
- 1 cup fresh mint leaves
- 3–10 drops essential oil of mint

Mallow adds so much value to ice cream. It imparts its medicinal demulsifying action while making a thicker, creamier texture. Blend the mallow roots with water and strain out the fiber. Place the mallow water back into the blender and add the avocado, honey, mint, and oil. Blend until creamy and freeze in a metal bowl, stirring every hour to maintain a creamy texture. Delicious!

Vanilla/Cacao Mallow Ice Cream

- 2 cups whole fresh mallow plants and roots, diced
- 3 cups water
- ½ cup honey
- ½ cup cashews
- 2 teaspoons vanilla

¼ cup raw cacao or carob powder

Follow the same recipe as above with these ingredients. If you prefer to avoid nuts, you can use one avocado or two bananas to reach the creamy texture.

Mallow Cheese Wheel Salad

4 cups of wild mallow leaves, flowers, and as many cheese wheels as you can gather in a reasonable time
½ head butter lettuce, chopped
2 cups cabbage, sliced
2 tomatoes, diced
1 large cucumber, diced
½ cup raw almonds, crushed

Separate the mallow leaves, flowers, and cheese wheels from the stems. Thinly slice all the greens and place into a bowl. Add the rest of the ingredients, reserving the crushed raw almonds, the cheese wheels, and flowers for the top to garnish the salad before eating. Mix all together with the following marvelous mallow salad dressing and serve with smooth grace!

Marvelous Mallow Salad Dressing

1 cup whole young mallow plants, chopped
2 tablespoons olive oil
2 tablespoons apple cider vinegar
2 tablespoons honey
2 tablespoons tamari
2 tablespoons water
1 teaspoon each any fresh herbs available such as thyme, dill, basil, or oregano

In addition to nutrition, mallow gives this dressing an extra smooth quality that creates almost a creamy texture. Blend all ingredients in the blender until smooth and serve over your mallow cheese wheel salad for a healing and delicious meal with a creamy wild weedy flair!

Pickled Mallow Fruit Capers

3 cups fresh mallow cheese wheel fruits
1 tablespoon honey
1 teaspoon dill seed
2 cloves garlic, diced
1 cup apple cider vinegar

The seeds are a delicacy and can be pickled like capers. For efficient collecting of these tiny fruits low to the ground, gather the children in your neighborhood for the Mallow Caper Game! This game consists of giving each child a paper cup. Instruct the children to go out into the garden and gather enough cheese wheels to fill their cups. Many community gardens are great places for this game because mallow loves to grow in nearby pathways and in and around the beds. To make the game worth your effort, you will need at least five or six willing kids who can each gather one cup. This will amount to about 1 pint of mallow cheese wheel fruits. When a child brings the full or partially full cup back to you, the prize is a scoop of mallow mint ice cream or a drink of mallow milk shake.

Add the mallow cheeses, honey, and spices to the jar. Fill the jar with apple cider vinegar and close the lid. Leave at room temperature to ferment for one week. Enjoy the capers over your salads or as a garnish for other menus and dishes. They make a delicious addition to sandwiches and pasta. The pickle water can be saved and used as spiced and healing vinegar for salad dressings in the future.

Raw Marble Malva Halva

This is based on a traditional Middle Eastern recipe, which was inspired by my Iranian friend Elani. One traditional recipe used mallow root and another recipe used egg whites as part of the ingredients. When soaked in water overnight mallow root becomes just like the texture of egg whites and gives the recipes a special texture and nutritional value. I like to use both white and black sesame seeds to add variety, but if you only have one color you can still make this recipe because the carob or cacao will darken the other layer to create the marble effect.

4 cups sesame seeds, white
2 cups sesame seeds, black
2 tablespoons carob or cacao

½ cup honey

2 teaspoons cinnamon

½ teaspoon salt

4 tablespoons mallow root water

Grind the white sesame seeds in a blender or food processor until well broken. Take out and place in a bowl. Grind the black sesame seeds and place them in a separate bowl. Mix the raw carob or cacao powder into the black sesame seeds for the inner layers. Mix together the honey, cinnamon, salt, and mallow water and divide in half. Add one half to each sesame bowl and mix well. Start with the white marble layer and press about a fourth of it onto a plate in a square shape. Then add half of the black mixture on top. Add another layer of white, the rest of the black, and the final layer of the white sesame mixture on top. Place in the refrigerator to cool and set. Cut into squares and enjoy the sweet dessert of wild malva with a Middle Eastern root of tradition!

Raw marble malva halva

Wild Mint Magic Treats

4 cups pumpkin seeds
1 tablespoon dried mallow powder
13 drops edible essential oil of mint
5 cups dates
A bowl of sesame seeds to coat the balls

Put pumpkin seeds, mallow powder, and mint oil in food processor and blend together into a fine powder. Add mint oil very carefully with a dropper. Pit the dates and add them to the mixture in the food processor one by one as it is still blending. Empty all mint magic batter into a bowl. Separate batter into bite-size pieces and with damp hands roll each clump into a ball. Place in a container that is about half full of sesame seeds. Put the lid on and shake vigorously. Remove the balls and place in a small plastic bag for later or enjoy fresh. They keep for over a month in the refrigerator.

Mallow Water

1 cup mallow (all parts are good to use)
2 cups water

Chop the mallow using the whole plant and add it to the water. Leave at room temperature and wait a minimum of one hour and up to eight hours. Place the mallow water in the refrigerator to be able to use it on an ongoing basis without it going bad. Drink mallow water to soothe the belly, lubricate the tissues, calm the appetite, and as an ingredient for other recipes.

Morning Mallow Juice

2 cups mallow plant, chopped
4 cups water
1 apple
1 cucumber
½ lemon, peeled and deseeded

Harvest the mallow with the stems, flowers, fruits, seeds, and root. Add all the ingredients together and blend. Strain out the pulp if you want a clear juice or leave it in for a thicker texture. The pulp makes a great addition to salad dressing. This slightly gelatinous mixture is soothing for the stomach first thing in the morning. It gently draws out congestion from the night's rest while rehydrating the body for the day. If you want to use the pulp for

making a face mask, leave out the lemon and apple until after you strain the mallow and cucumber separately, then add them to the strained juice. For best results, use the mallow pulp within an hour of making your juice.

Mallow Root Milk

- 1 cup mallow root, chopped
- 3 cups water
- 1 teaspoon vanilla
- 2 tablespoons honey
- ½ cup almonds, soaked (optional)

Blend all ingredients and strain out the white milky mallow liquid. Use in replacement of dairy or nut milks for a delicious and nutritious drink loaded with calcium and magnesium. For creamier, thicker milk, you have the option of adding a few nuts like almonds or cashews.

Mallow milk

Mallow Milk Shake

2 frozen bananas
1 cup ice
3 cups water
1 tablespoon agave nectar
1 tablespoon raw cacao powder
2 cups fresh mallow leaves or 2 tablespoons dried mallow leaves

Blend all ingredients together until creamy. Enjoy on a hot summer day out in the sun!

MUSTARD

May mustard inspire alignment with the Earth's rhythms and natural laws of giving and receiving.

"All mustard plants with petals of four,
Are spicy and sweet enough to make you want more.
The flowers come in pink, purple, yellow, and white
And get the creative juices flowing into the night."

Mustard

Family: Brassicaceae (entire family is edible and medicinal)

Latin Name: *Brassica juncea* (Brassica originally came from the crucifers, which came from *caulis* meaning “stem” and *juncea* means “rush-like”; the term *mustard* came from the Latin name *mustum ardens*, which translates to “burning wine”)

Related Useful Species: Kale, broccoli, cauliflower (*Brassica oleracea var.*); black mustard (*B. nigre*); Chinese cabbage (*B. pekinensis* and *B. chinensis*); rutabega (*B. napobrassica*); turnip (*B. rapa*); radish (*Raphanus sativus*); wasabia (*Wasabia japonica*); horseradish (*Armoracia rusticana*); shepherd’s purse (*Capsella bursa pastoris*); pennycress (*Thlaspi arvense*); maca (*Lepidium meyenii*)

Global Common Names: English (mustard); German (mostrich); Italian (senape); Spanish (mostaza); French (moutarde); Portuguese (mostarda); Dutch (mosterdgas); India (rai)

Brown mustard

Description

There are over 3,500 plant species in the mustard family worldwide and over 40 in the Brassica genus. The mustard family varies greatly in size and shape but all of them are edible and medicinal. Mustards range from annuals to biannuals and perennials depending on the species. When I travel by plane and have some time between flights at an airport, I get outside to see what plants are growing in the area. Every time that I can remember, I have harvested at least one kind, if not several different species, of mustard

growing somewhere outside where there is open land.

A very distinguishing character of mustard is the pungent aromatic smell and spicy taste of almost every part of the whole plant. When the leaves are crushed, a strong aroma is present by breathing in deeply the spicy flavor; it is also fairly easy to detect when tasting the plant. Although the flavors of each variety of mustard can be quite different, there is a common sulfurlike spicy burn reminiscent of wasabi or mustard sauce.

Another unique feature is the seed. Mustard seeds develop their fruits consistently in the form of pods. These plants develop seedpods that open into two halves lined with seeds inside. The pods of the fruit vary in shape from long to round to heart-shaped depending on the species. The fruit is a capsule—called a *silicula* referring to the shorter pods and a *siliqua* for the longer types of pods. Most pods are filled with numerous seeds although pennycress (*Thlapsi arvense*) only contains two seeds per pod. Some species eject their seeds explosively to distribute them as widely as possible. The seeds in general are small, roundish, and smooth and occur in a variety of colors ranging from yellow to reddish brown to black.

There are three main types of mustard plants from which the seeds are commonly used to make the mustard condiment—the black mustard (*Brassica nigra*), white mustard (*Brassica alba*), and brown mustard (*Brassica juncea*). All three mustards are commonly found growing as a weed in many regions of the world. They grow between 1 and 2 feet tall with straight and erect branching stems. The leaves form in an alternating pattern up the stem. The leaves are dark green and oval shaped with jagged edges. They originate in larger leaves from a basal center and then move up the stalk in progressively smaller leaves throughout the season as the plant matures into its flowering stage.

The young mustard plants can be mistaken for dandelion leaves but the main difference is that the teeth of the mustards point upward and away from the central base, while the dandelion teeth point downward and inward. The taste is also distinctly different. Dandelion leaves are bitter while the mustards have a spicy flavor. Also unlike the dandelions, there is no white milky sap present when picking the leaves or stems of mustards.

Mustard rosette

Classic four-petal flower

Another consistent trait of the mustards is they all have four flower petals. The whole family has consistent uniform flowers in a typical crosslike arrangement, which is where the older mustard family name, *Cruciferae*, originated. The flowers of many common wild species of mustard are yellow including *Brassica nigre*, *B. juncea*, *B. arvense*, and *B.*

rapa. However, flower colors of other mustard species range from pink, purple, and white to variations in between. The size of the flowers has a large range from being very tiny in the species known as pepperweed (*Lepidium latifolium*) to larger and showy in black mustard (*B. nigre*) and arugula (*Eruca sativa*). The flowers are pollinated by insects, a process called *entomophily*. The attracting nectar is produced in the flowers at the base of the stamens and stored on the sepals.

Yellow mustard flowers

Mountain mustard flowers

The roots are taproots with outreaching and branching smaller roots. Mustard roots appear in all shapes, sizes, and colors from short round red radishes to long white daikons to the wilder varieties with a thinner taproot. The root of brown mustard (*B. juncea*) grows between 6 and 12 inches. It is long and light colored and generally only about ½ inch wide at the upper soil level.

Current Uses

At Turtle Lake Refuge, it is the mustard greens that create one of our earliest harvests. We use the wild mustard greens primarily in the spring when they are growing their larger earlier leaves at the base of the plant. One of the most common mustards found at the farm is rocket mustard (*Sisymbrium irio*). We harvest the greens when they are still in the younger rosette stage and easy to find with large and green foliage. It can be relatively easy to harvest a large quantity for our salads at lunch or for our weekly farmers' market nori rolls and our dried nori chips. We harvest extra to dry and store for the winter months because wild mustard greens are an ingredient in one of our staple bulk foods, wild mustard nori chips (see recipe section at end of chapter).

Rocket mustard

Luckily the wild mustards are plentiful on our farm. There are many different species that grow wild. Each kind of mustard tastes different and varies in flavor and texture. As you find new mustards to gather along your path, it is wise to taste each plant to determine if it will be a welcoming ingredient in a dish. Some mustard varieties are too pungent to be able to add much to a recipe without it being overpowering. In general the younger the mustard greens, the sweeter they are. As they mature, the flavors become more potent and sometimes even burn from their heat like an intense bite of wasabi.

I have found that both the mustard flowering bud and the young seedpods are a delicious addition in dishes ranging from salads to vegetable dishes. Their flavor is strong and the texture is unique. If the pods grow old, they become too fibrous to be enjoyable. The young seedpods can be made into a delicious pickle (see recipe).

During the time when I embarked on my personal wild thirteen weed challenge and only ate these thirteen wild weeds exclusively for two weeks, I found myself feeling especially supported by the mustard family. When I wondered what I would have for my next meal, I had a feeling of freedom in my choice of so many mustards. Arugula, spicy black mustard, cabbage, cauliflower, radishes, broccoli; the list goes on and they were all welcome!

During this time when I felt I needed some more substantial food, I went to the mustards to fill up.

One of my favorite recipes during the journey was mixing together in the food processor cauliflower, sprouted quinoa, and French sorrel leaves. I would then make a burrito with a lambsquarter leaf with this mixture as the filling. I found this recipe very sustaining and filling due to the proteins from the quinoa and substance from the cauliflower. Another delicious mainstay in my simplified diet during the wild thirteen weed challenge was sauerkraut. When I cultured the mustard family, using varieties such as cabbage, I even appreciated it more. The cabbage became easier to digest and gave me more energy.

Homegrown cabbage

We have been working with our city to explore effective organic mosquito controls. We've found that placing crushed mustard seeds in standing water prevents mosquito larvae from developing. In addition to ingesting the mustard seeds in edible recipes, they impart a subtle body odor that can act as a personal repellent to mosquitoes.

History

Mustard could be considered one of the oldest condiments in recorded history. The seeds were found in the tombs of the pharaohs in Egypt. It originated with the early Romans from the practice of soaking mustard seeds in a lightly fermented grape juice called musk. The mixture of wine and mustard seeds was used as a stimulant to prepare for battle. In Greece, in the sixth century BC, Pythagoras utilized mustard as a medicine for treating the stings of insects including scorpions. Hippocrates also valued mustard for making medicine and used it in poultices to increase circulation and to help rid the body of inflammation and congestion. Mustard became well known for increasing the blood flow to an injured area and promoting healing with everything from toothaches to sluggish organs.

In China, mustard seed oil was one of the original fuels used for lighting torches before the more modern petroleum products, such as kerosene or white gas, became widely available.

According to the legend, around the fourth century BC, King Darius of Persia sent Alexander the Great a large sack of sesame seeds to try and intimidate him with a perception of the greatness of his army. Alexander's response was to send back the same sack full of mustard seeds. His message communicated that his army was even more powerful because more of the smaller seeds would fit in the sack, and the fiery nature of the mustard seeds showed he had the strength to win the war.

In the thirteenth century, the French began perfecting mustard as a sauce and Dijon mustard, originally made in the city of Dijon, grew in popularity and continues to be a favored choice. In England in the 1600s, a special horseradish mustard sauce was created in the town of Tewkesbury in Gloucestershire. Shakespeare brought a lasting fame to this type of mustard by referring to it in his play *Henry IV*: "His wit is as thick as Tewkesbury mustard!"

The mustard seed is quoted as a poetic metaphor throughout the Bible to honor the strength of even that which is small. "What shall we say the Kingdom of God is like? What parable shall we use to describe it? It is like a mustard seed, which is the smallest seed you plant in the ground. Yet when planted, it grows and becomes the largest of all garden plants with such big branches that the birds of the air can perch in its shade; if ye have faith as a

grain of mustard seed, ye shall say unto this mountain; remove hence to yonder place; and it shall remove."

Each summer the Turtle Lake Community Farm, serving as a worksite, hosts several church groups in community service. We have been blessed to have amazing volunteers for the last ten years. One summer, the group presented me with a Bible as a token of appreciation for allowing them to serve and work on the farm for three days mulching trees, reapplying a coat of mud plaster on the straw-bale composting toilet, and a variety of other projects. In their beautiful way of saying thank you and of supporting my journey in writing about wild plants, they had underlined every passage in the Bible that referred to plants. Many of the passages cited the mustard plant. I am still deeply touched by their effort and care!

Faith of a mustard seed growing in the farm truck license plate

Edible Uses

Mustard greens are a delicious and spicy addition to salads and dishes, wraps, and nori rolls. The seeds can be made into homemade mustard relish, stored as a spice, or extracted into oil.

Nearly all of the mustards available for purchase come from three main varieties—the spiciest flavored black mustard seeds (*Brassica nigra*), the medium heat brown mustard seeds (*Brassica juncea*), and the mildest yellow seeded mustard (*Brassica hirta*). Dijon mustard exclusively uses the brown mustard seeds, French mustard solely uses the yellow mustard. The spiciness

and pungency of mustard develops not from an oil-based species such as in chili peppers, but from the reaction of the enzyme myrosin. When the seeds are ground and exposed to air and cold water, the enzymes catalyze the production of a sulfur compound, ally-isothiocyanate (a mustard oil), which creates the familiar taste and burning sensation. The mustard oil in large quantities can irritate the mucous membranes of the sinuses, throat, and eyes. Wasabi, a Japanese mustard, is commonly used in sushi restaurants as a spicy condiment. To maintain its heat, the wasabi must be preserved in vinegar. The mustard oil vapors are what we experience when we take a large bite of wasabi and the sensation goes to the nasal passages more than to the tongue.

I find that gathering mustard seeds is easier than many of the other wild seeds. The seed heads can be collected in the fall by hand and placed in a paper bag. Some of the pods will open spontaneously and spill the seeds in the bag, while other pods may need the encouragement of hands rubbing over them to open and spill their seeds. Once they are fully dry, the seeds can be stored in glass jars for homemade condiments and for flavoring dishes, as well as for medicinal purposes.

Brown mustard is grown mainly for its seed in Asia, Europe, and America for the extraction of vegetable oil. In regions of the former Soviet Union, mustard oil is used as a substitute for olive oil. There is caution with using mustard oil because of the high concentration of erucic acid, and in Western countries its use as edible oil is restricted.

In India, the seeds are commonly used in traditional cuisine, such as curry spice. The mustard seeds are known by the name *rai*. The seeds are placed in hot ghee to pop and then added to recipes for additional flavor. The seeds have a significant amount of fatty oil. When the seeds are cooked, some of the spiciness is lost, making them less concentrated because the enzyme that causes the taste experienced becomes denatured with heat. Mustard seeds contain between 25 and 35 percent protein. The leaves are a fantastic source of calcium, phosphorus, magnesium, and vitamin B complex.

Maca is a mustard root similar to radish or turnip that grows in the highlands of Peru and in the Andes. It is commonly grown at elevations of 11,000 to13,000 feet above sea level and is gaining popular attention for its edible qualities as well as its aphrodisiac, energy, and medicinal benefits. Maca is a common ingredient in raw cacao bars and energy smoothies in

health food stores throughout North America.

Making your own oil from the wild mustard seeds is a fairly simple process. Start by adding a cup of the seeds to a dry cast-iron skillet and toasting them on medium heat for a couple of minutes. Once they are cooled, use a mortar and pestle or coffee grinder to grind the seeds down into a fine powder. Add the ground seeds to a pan of water (approximately 3 cups) and boil for about five to ten minutes. The mustard oil will rise to the top of the water. Turn off the heat and cool. Scoop the mustard oil off the top of the water and store in a separate container. This mustard oil is very potent and can cause irritations if it directly touches the skin. It can be used in a dilute form medicinally by adding an additional oil or mixing it with flour or mud to create a stimulating poultice.

Medical Actions

- Anodyne: relieves pain
- Antibacterial: inhibits the growth of bacteria
- Antidotal: helps to counteract poisons or injuries
- Antifungal: inhibits growth of fungus
- Anti-inflammatory: reduces swelling and inflammation of the tissues
- Antirheumatic: reduces rheumatic symptoms
- Aperient: acts as a mild laxative
- Appetizer: stimulates appetite
- Diaphoretic: increases perspiration
- Digestive: aids digestion of foods
- Diuretic: increases the flow of urine and secretions
- Emetic: causes vomiting
- Expectorant: removes mucus from respiratory passages
- Galactogogue: promotes lactation
- Hepatic: supports or drains the liver
- Ophthalmic: aids in draining the eye or structures near the eye
- Rubefacient: topical application causes dilation of capillaries and an increase in blood flow to the skin
- Stimulant: quickens physiological action
- Tonic: restores or increases body tone

Medicinal Uses

Mustards make powerful medicine. Mustard seeds are generally more potent than the leaves, but both have strong qualities and are best used in dilute concentrations. The leaves can be mashed with a little water and used as a poultice for insect bites and stings. This poultice is also very effective for stopping bleeding. When the leaf poultice is warmed, it makes a gentle stimulating and warming wrap for the kidneys. Both the seeds and the leaves stimulate circulation in the body. Mustards help people decrease obesity by stimulating overall circulation in the body. The seeds can be ground finely and added to socks to warm feet during long backcountry ski outings. It is a good idea to wear two pairs of thin socks and place the mustard powder in between the two pairs of socks so that the powder does not touch the skin directly. Make sure to bring another pair of clean socks to use when your feet have heated up enough.

Shepherd's purse growing at Findhorn Ecovillage

The whole plant in a tea makes a beneficial wash for preventing infection, tightening skin, and healing wounds. The tea also works well as a mouth gargle for sore throats, and helps to eliminate congestion. The tea also contains fumaric acids, which are known to reduce the growth of tumors.

The mustard plant is highly validated by the seventeenth edition of the *US Dispensatory* with a long list of values and uses. In general, mustard gives

positive relief in excessive menstruation, while also relaxing and increasing the flow of urine. It is a stimulating diuretic, relieves hematuria or blood in the urine, and is useful for internal hemorrhaging. The wild mustard, shepherd's purse (*Capsella bursa-pastoris*), contains valuable blood-clotting agents such as vitamin K and the alkaloid bursine, known for its hemostatic, antiscorbutic, diuretic, stimulant, and tonic uses.

Mustard paste when applied to the body on an area of congestion such as a swelling or tumor will increase the circulation and promote healing. There is a chance of burning the skin from direct exposure to the seed paste depending on the strength of different mustards, so as a precaution it is wise to layer the skin first with some coconut or olive oil for protection or dilute the powdered seeds with half flour prior to making the paste. Ground seeds of the plant mixed with honey are widely used in Eastern Europe as a cough suppressant. The oil is used as hair conditioner, which stimulates a healthy scalp treatment for helping get rid of dandruff.

Bach Flower Remedies prescribes mustards to those who lack interest in present circumstances or are depressed for no discernible reason. I personally like to put mustard flowers in my drinking water to benefit from the creativity that mustards inspire. Mustard is heating and can also act as an aphrodisiac. We serve a mustard-spiked raw cacao hot toddy drink at the end of our annual Valentine's dinner to enhance our guests' evening with the ancient secret of romance and love.

Inspired dancing at our local raw and wild Valentine's dinner • Photo courtesy of Kurt Blair

Recipes

Wild Mustard Nori Chips

1 pound sunflower seeds, soaked
2 cups fresh mustard greens or 2 tablespoons dried mustard greens
2-inch piece ginger
3 tablespoons tamari
½ cup acorns (if available)

Grind all ingredients in food processor until smooth and spread on nori seaweed. Dry until firm and then break into chips.

Homemade Wild Mustard Pretzels

2 cups buckwheat groats, soaked and drained
2 cups cashews
1 tablespoon salt
3 tablespoons olive oil
1 tablespoon mustard seeds, ground finely
Dash of cayenne pepper
1 tablespoon honey

Mix all ingredients in the food processor and grind together to a doughlike consistency. Using moistened hands, shape into the classic pretzel knot, add a sprinkle of salt to the top of each, and dry until firm. Dip these large pretzels into the honey mustard dressing (see recipe below) as a wonderful hearty snack.

Purple and green cabbage

Simple Sauerkraut/Kimchi

A vegetable sauerkraut or kimchi can be cultured from a number of the mustard species including cabbage, daikon radish, turnips, or bok choy. Sauerkraut is traditionally not spicy and made from basic green cabbage whereas kimchi is classically spicier in nature. I like to play with a variety of recipes including wild roots, seaweeds, and spices. Follow the basic sauerkraut recipe and then add your own creative embellishments to increase the spice, flavor, and zing. Use the ingredients that are local to your area whenever possible.

Basic Cabbage Sauerkraut

4 heads green cabbage
3 tablespoons salt

Grind the cabbage in a food processor or chop by hand until well diced. Add salt. Using a wooden dowel, beat the cabbage and salt until the juices begin to flow. Pack the mixture in a glass jar tightly with your clean fist, making sure that there are no air pockets. Fill the jar as full as possible and press down firmly to make sure that the juices rise to the surface, covering the cabbage. Close the lid loosely so that excess liquid can escape if necessary. Place the jar on a plate to catch the spilled juices. Cover with a cloth and leave out at room temperature for one week to ten days. Harvest the sauerkraut when the smell is ripe. If necessary scrape off the discolored layer at the top. The discoloration and sometimes mold will happen if the juices overflowed and left the upper layer exposed to air. The sauerkraut packed tightly below is still edible and tasty! To prevent this from occurring, as necessary, add salt water to the top of the jar to ensure that the cabbage is always in an anaerobic state with no air exposure.

Spicy Mustard Kimchi

1 Napa cabbage
1 daikon radish
2 red cabbages
2 cups mustard greens
2 tablespoons mustard seeds
2 tablespoons salt
1-inch piece ginger

Grind all ingredients together in a food processor and continue to follow the basic sauerkraut recipe.

Honey Mustard Dressing

- ½ cup olive oil
- ¼ cup miso
- 1 tablespoon mustard seed
- Dash of cayenne pepper
- ½-inch piece ginger
- 3 tablespoons apple cider vinegar
- 1 clove garlic
- 2 tablespoons honey
- ½ cup water
- ½ avocado or ¼ cup plaintain seeds (if you want a thicker dressing)

Mix all ingredients in the blender and serve over your favorite salad.

Creamy Mustard Root Spice Soup

- 1 cup mustard root, chopped
- ½ cup almonds, soaked
- 1-inch piece ginger
- 1 tablespoon salt
- 1 teaspoon mustard seeds
- 1 cup mustard greens, diced
- 3 cups water
- Handful of mustard flowers

Blend all the ingredients except mustard greens and flowers into creamy soup base. Add mustard greens to pot and stir in while warming on stove to perfect eating temperature. Add a sprinkle of mustard flowers to each bowl just before serving. Serve this spicy warming soup when a little extra circulation is needed to energize the moment.

Mustard Seedpod Pickles

- 2–3 cups young and tender mustard seedpods
- 2 cups apple cider vinegar

1 cup water
3 cloves garlic
1 tablespoon salt
1 tablespoon honey
½ cup dill leaves and stems

In a quart jar add all ingredients and allow to culture for one week out of refrigerator. Afterward, place in refrigerator and enjoy pickles as a garnish on other recipes. When mustard pods have all been eaten, use pickle water as base for salad dressing.

Wild Mustard Nutty Seedy Cheese

1 cup almonds, soaked
1 cup sunflower seeds, soaked
2 teaspoons salt
1 teaspoon mustard seeds
2 cloves garlic
½ teaspoon turmeric

Grind all ingredients in a food processor until it reaches a smooth consistency. Use cheese as dip with vegetables or spread it on big local green leaves such as hollyhock, lambsquarter, or amaranth greens as a wrap. Add fresh tomatoes, cucumbers, and avocado and roll up into a delicious burrito.

Nasturtium flowers

Mustard Green Salad

2 cups young mustard greens
1 cup nasturtium flowers
4 cups other available local greens
1 apple, diced
½ cup fresh microgreens
1 red beet, shredded
½ cup walnut pieces

Mix all ingredients in a salad bowl and drizzle with honey mustard dressing (see previous recipe).

Mustard Flower Apple Cobbler

Crust

1 cup oats
1 cup dates
Pinch of salt

Filling

4 apples
1 lemon, juiced
1 teaspoon cinnamon

Toppings

½ cup mustard flowers

To make the crust, first grind oats, dates, and salt together until the mixture forms a doughlike consistency. Press into pie pan. For filling grind apples with lemon juice and cinnamon and layer into pie pan. For final flair, decorate with a variety of mustard flowers in as many colors as you can find. The nature of mustard flowers creates a perfectly full rainbow experience when balanced by the sweetness of apples and dates along with the tartness of the lemon.

Mustard Flower Essence Water

1 tablespoon mustard flowers
1 quart water

Get your creative juices flowing into the night! Add fresh mustard flowers to water and allow mixture to steep in the sun for one hour. Enjoy a burst of creative energy that comes from the inspiration of the mustard flowers as you drink this hydrating and slightly stimulating tonic water. Mustards can be considered the artists, poets, painters, and sculptors of the plant world.

PLANTAIN

May plantain promote quality of life for all of our relations.

“If you need a first aid kit,
Plantain leaves and seeds are it!
Chew the leaves into a mash
To help with bites and stings and rash”

Plantain

Family: Plantagonaceae

Latin Name: *Plantago major* (*Plantago* derives from *planta*, meaning “the sole of the foot”; it is shaped like a foot and it grows in places that have been compacted due to human footsteps)

Related Useful Species: Narrow leaf plantain (*Plantago minor*), buckthorn plantain (*P. lanceolata*), sea plantain (*P. maritima*), Indian plantain (*P. afra*), psyllium (*P. ovata*)

Global Common Names: English (plantain, waybread, ribwort); Spanish (llanten); French (plantain); German (wegerich); Finnish (heinaratamo); Norwegian (groblad [means healing leaves]); Dutch (weegbree)

Broad leaf plantain

Description

There are thirty-four *Plantago* species and all of them are edible and medicinal. Plantain leaves are shaped like the sole of a foot and grow in a rosette of leaves all originating from the central base of the plant. Plantain has long, ribbed, deep veins that run from the stem all the way to the tip of each leaf.

Broad leaf plantain (*Plantago major*) has egg-shaped leaves that can grow to the size of your palm when they are in lush conditions. Plantain is

tough in nature to handle the abuse of being stepped on, trampled, and even driven over. This tactic adds to their resiliency while holding the moisture and topsoil in the ecosystem. One of its survival strategies is to lay flat when disturbance is passing by—whether it is a human walking, a car driving, or a cow grazing. Plantain is often seen growing in lawns, on edges of dirt roads, and on trails of hardened soil, making it very accessible to most humans in civilized regions.

One of plantain's most distinguishing characters is its strong fibers. Plantain's stringy nature becomes obvious when one harvests the leaf by pulling it off from the narrow stem at the base of the plant. The leaf often breaks free with strings still attached to the stem. For a moment, it looks like a tiny musical stringed instrument before pulling further and then finally breaking off completely. The fibers of plantain can be worked with for making twine and weavings.

The narrow leaf plantain (*Plantago minor*) can resemble wide grass. The leaves are long and narrow with distinctive deep veins that run parallel to each other up the tip. Unlike grass, plantain has tiny veins running throughout the leaf in all directions.

Narrow leaf plantain

Plaintain's flowers are delicate and small but profoundly beautiful if viewed closely. Each flower has four tiny petals but they are so small you

have to really take the time to look closely to see them at all. The flowers are white and spray outward from the long singular stalk. Many flowers bloom at the same time in a circle around the top of the stalk. Several stalks can rise out of one plant from the basal leaves and root structure growing to the height of 3–20 inches.

Plantain flower

The root is fibrous, made up of thin, whitish-yellow straight rootlets that tend to be shallow growing and bushy. The seeds develop on the upper flowering stalks by lying snugly against the stem. Once the seeds have formed, they are green when still maturing and turn brown when ripe. The seeds are attached along the upper sides of the stalk and eventually fall out of their casings onto the ground. They are very small, light brown, and oval shaped and break down by chewing.

Plantain thrives in fertile conditions and the leaves can reach over 1 foot tall with the flowering stalk even taller if moisture is available. However, plantain can tolerate drought climates and is certainly a master of compact soil.

Narrow leaf plantain tall flowering stalk

Plantain is a perennial plant returning each season in the same location. The leaves are hardy, sturdy, and almost tough in texture. In my experience, plantain leaves far surpass any other green in being able to stay vital for extended periods of time without wilting or molding.

Current Uses

I consider plantain to be one of my staple foods when I am on long hikes or walkabouts where I am only eating the wild foods around me. They make a perfect traveling snack and sustain me with energy; the seeds are packed with nutrients. When the stems are loaded with seeds, I like to pick a stalk and eat the seeds while I am hiking. They also store well in pockets and packs and can easily be gathered for later. I enjoy both the unripe green seeds and the ripe brown seeds. The brown seeds when chewed well turn into a gelatinous mash with a slimy texture. The green seeds are easy to chew and taste like a delicious green vegetable. I place the whole stalk in my mouth and pull off all the seeds between my teeth, leaving an empty seed stalk twig as it is pulled out of my mouth. I chew the seeds very thoroughly until all the seeds have been ground fine before I swallow. The brown seeds, because of their gelatinous nature, offer a gentle support to elimination. It is a light and fuel-efficient food all the while keeping the body regular at the same time. Plantain grows on the Colorado Trail up at 10,000–11,000 feet elevation along with its companions mustard, grass, clover, lambsquarter, dandelion, dock, mallow, knotweed, thistle, and chickweed.

Plantain seeds

I love gathering plantain for my morning green juice and dicing the leaves into salads and other recipes that call for greens. I find that the flavor of plantain is very agreeable to me now, but I remember I felt differently when I was first introduced to it. Plantain has a very strong taste, sometimes

a little bitter, but mostly just powerful in flavor. Perhaps it is an acquired taste, but now when I chew plantain leaves, I love and even crave the fullness of the flavor.

I recently picked a bunch of different wild greens for our wild CSA program members and placed them in a plastic bag to be picked up by the participants. One member didn't pick up their bag and it was forgotten for about a month. When I found it later, the plantain greens were still in prime condition while the rest of the plants had started to compost in the bag. The plantain holds its integrity even better than most of the other wild greens.

Plantain leaves for the wild CSA program

Plantain is a great ingredient to include in winter powders. Due to its high levels of protein, calcium, iron, and micronutrients, it regenerates the strength and resiliency of bones, teeth, muscles, and organs. Plantain helps increase bone density to prevent breaking or fracturing at older ages.

Plantain is an essential medicine for emergencies and acute care while also acting as a powerful preventative for long-term health when used as food. There is little need to buy supplements and fewer reasons to visit a doctor when plantain is around! Save your money and time for the things your soul desires really want to manifest, such as creating a more energy-efficient lifestyle, a good well-tuned bike, time for exploring this wild wonderful world, time playing with children, time to grow an abundant garden for local wild fresh foods, time to do what you love. Both health and

time are forms of wealth that are greater than money! Plantain inspired this song on my last walkabout:

I am singing this song to remind me
that what I love to do
Is ramble along on the mountainside
eating wild all the way
And loving everyone
with every step I take
While freeing my mind of clutter
so inspiration shines through!

History

Plantain finds its niche underneath the trampling foot of humanity and has followed civilization to all regions of the globe. The history of plantain healing people throughout time is extensive. Historically plantain's great value and medicinal use has ranged all over Europe and Russia and the Middle East. The Anglo-Saxons called plantain "Lacnuga, the mother of worts (plants)" and it was one of the most magical herb remedies from the time of the early Celtics. The Anglo-Saxons who ruled the British Isles in the fifth century included plantain as one of their nine sacred herbs. Another common name for plantain during that time was *waybread*, because it grew along the pathways and had broad leaves. This name may also indicate that it was considered as valuable as bread. The healing potency of the leaves and seeds of plantain is used in many cultures for drawing out pain and toxins. The Saxons and native tribes of North America have separately recorded making a poultice of the crushed leaves and seeds, and in a cloth bound it to the forehead for eliminating headaches.

Roger Hernandez, the Mexican author, noted that back in the 1500s, when the Spanish were exploring the Americas, plantain was used as food by the Aztecs. The Native American tribes of North America recognized and valued the benefits of plantain when it began to appear in more quantity in the wake of the new settlers' arrival to the country and referred to it as "life medicine."

In the first century in the *De Materia Medica*, Dioscorides the Greek physician highlighted plantain for its ability to close wounds and rid the

body of rabies.

The famous first century physician Themison of Laodicea wrote extensively on plantain (referred to as *waibred* or *plantaine*) to describe its usefulness as a universal remedy. In 1652, Nicholas Culpeper wrote in a pharmaceutical text that plantain is a wonder drug that cures issues from gout, to broken bones, to arthritic joints and muscle swellings. Shakespeare's play *Romeo and Juliet* includes plantain as the treatment for healing a broken shinbone.

According to the doctrine of signatures, a concept developed by Paracelsus in the 1500s, the phallus-shaped flowering stalks and egg-shaped leaves make plantain an excellent food for fertility. The Chinese also utilize plantain for helping to promoting conception and used it as an aphrodisiac. More recent studies from the University of Malaysia continue to validate this by showing that plantain increases the sperm count of males. Plantain is also very beneficial to women by toning the female organs. Plantain is a true blessing for all life!

Edible Uses

The whole plant of plantain is edible and can be used as food in a myriad of ways. The leaves have a distinctive flavor that imparts an added dimension to a salad. Its leaves when combined with diced apples and other milder greens balance out into a perfection of culinary delight. The roots, although not that substantial in size, can be included with the greens and blended into soups or added to any vegetable dishes for increasing a wild grounded connection to the local land. Plantain contains considerable potassium, which is critical for the heart, healthy glands, and healthy functioning of female organs.

Plantain seeds are a sustainable food rich in proteins, carbohydrates, fatty acids, amino acids, omega-3 fatty acids, and other minerals. The seed coat is made up of 30 percent mucilage. The mucilage absorbs toxins in the digestive tract and greatly supports effective elimination. The seeds act gently in lubricating the colon with their mucilaginous nature, making the perfect food and medicine in one. The plantain seeds are a relative of psyllium seeds (*Plantago ovata*) and have the same gelatinous quality—making a valuable base for thickening soups in recipes, for binding crackers,

and firming up desserts.

Medical Actions

- Alterative: improves overall health due to quality nutrition
- Antibacterial: inhibits the growth of bacteria
- Antidote: counteracts poisoning
- Astringent: tightens, constricts, and tones while reducing secretions and discharges
- Antiseptic: inhibits infection
- Demulcent: forms a soothing film over mucus membranes, relieving minor pain or inflammation by drawing out toxins
- Deobstruent: opens, clears, and removes obstructions
- Diuretic: increases the flow of urine and secretions
- Expectorant: removes mucus from respiratory passages
- Febrifuge: reduces fever
- Hemostatic: stops bleeding
- Ophthalmic: aids in draining the eye or structures near the eye
- Vulnerary: treats or heals wounds

Medicinal Uses

Plantain is a valuable first response plant when first aid is required. Both a demulcent and an astringent, it is this duo of characteristics that makes plantain an incredibly effective healer because of its ability to draw out toxins while at the same time tightening and toning tissues. The chlorophyll found in plantain inhibits germs and viruses and encourages improved circulation. It shifts a stagnant and anaerobic internal environment into an aerobic one by improving blood flow in addition to providing a wealth of micronutrients. The chlorophyll in plantain alkalizes the internal chemistry while binding to toxins for their removal.

Plantain is one of the more effective poultices to expel venom from an insect sting, snakebite, or poisonous spider. It is also exceptional for pulling out infection from a sore or wound so that it heals easily and quickly. Chew up the fresh greens if available or use some dried and finely ground into a powder mixed with water to make the poultice. Place a large enough amount to cover the affected area by two or three times more than the area of the

wound. Leave the poultice on for at minimum an hour, but preferably much longer depending on the case and situation. Two to four hours is recommended and overnight is a good option for more severe cases. You may want to reapply several times until the infection ceases. Place a poultice on for an hour or two, take it off and let the area breathe for an hour or two, and then reapply. Plantain draws the infection into a central area, forms a white head of pus, and releases it from the body.

After surgery, my mom had an incision that became inflamed. She tried a number of commercial antibacterial products to no avail. After I applied a plantain poultice, within twenty minutes the pus formed a head, drained, and the incision healed quickly with no new complications. She became an instant believer of plantain's value.

Plantain is a natural cleanser for infectious diseases caused by contaminated water or unsanitary conditions. Several in vitro studies documented that plantain inhibits the growth of *E. coli*, *Streptococcus pneumonia,* and giardia. As a preventative method, if you find yourself in need of purified water, break up the leaves of plantain and place them into the unpurified water for at least a half an hour before drinking. It is wise to eat some plantain leaves at the same time. Dried plantain leaves will also work. The greens increase the resistance of the gastrointestinal tract against any invasive bacteria or harmful microbes. The leaves restructure the crystalline nature of the water, create a healthy charge, and offer antimicrobial and parasitical activity that help prevent any infestations due to contamination. If plantain is growing nearby, chew the leaves before and after drinking the questionable water. Plantain juice is a natural antibiotic and expels parasites in the body.

Plantain leaves are a great first wild food and medicine to teach kids. If they get an insect or a bee sting, even a mosquito bite, plantain leaves are usually not far away or hard to find. Go in search of plantain to gather and make the remedy on the spot; it is very empowering to kids to know they can be their own doctor and find and make their own medicine from the Earth. When kids discover and harvest the leaves themselves, they often heal much quicker. It is good to have the person with the bite or sting chew up the leaves with their own saliva, as the saliva's natural enzymes add to the healing process.

Keep plantain in your first aid kit. It is wise to carry some plantain in a

dried powdered form on all of your travels and adventures. It is common to be able to find some when you need it, but there are times when it may not be available in a pinch and the dried powder will still provide medicinal benefit.

Plantain poultice and leaf wrap after wasp sting

The fresh leaves and dry leaf powder are very effective for relieving the pain and itchiness from an outbreak of poison oak or poison ivy. There is commonly plantain growing nearby to these poisonous plants for easy harvest in the moment. Plantain almost immediately alleviates the pain caused from the skin irritation or sting; its drawing and alkalizing nature neutralizes the acidity of the toxin.

Plantain's astringent qualities make it an ideal ingredient to use in a foot bath for tired feet. The fresh or dried leaves can be placed in hot water and steeped into tea. Soaking the feet in this water also helps tighten the skin and prevents blisters. Even placing a few leaves in your socks while hiking keeps feet hotspot free and happy. The plantain tea is beneficial as a wash for toning the skin and healing any irritations or rashes and reducing inflammation. The tea and the fresh juice make a healing mouthwash for sore throats and gum infections. If available I prefer to use the juice because of the vitality of enzymes still present. The proteolytic enzymes found in plantain help digest proteins and the natural antibacterial qualities help

prevent tooth decay.

The roots and leaves when ground up ease toothaches, strengthen the teeth, and repair wounds and bones. The root and tea makes an effective mouthwash and gargle to eliminate infection and tighten gums. The root is similar to comfrey in its bone-knitting qualities. Lay the pulverized fresh root over the affected area and bandage it on for several hours. In the meantime drink plantain juice to further speed the healing time. Plantain contains various salts of potash and potassium as well as wax, pectin, resin, and citric and oxalic acids. Potash salts are essential for recovering from an injury and rebuilding tissue and promoting healing.

The leaves can be easily juiced by blending them with water in a blender and straining out the pulp. The pulp can be used as the poultice and the juice is ready to drink. If I am out in the field when an injury happens, I just eat the leaves and drink water. For extended periods of fasting, the leaves and the seeds blended together are a detoxifying ingredient to add to juices to help move the bowels and eliminate toxins released by the fast.

According to the *PDR for Herbal Medicines*, plantain contains mucilages, glucomannans, flavonoids, caffeic acid esters, tannin, saponins, and silicic acid. The fresh juice of plantain has a bactericidal effect from primarily the antimicrobial saponin. In wound care, plantain juice also demonstrates an accelerated blood clotting effect.

Over two thousand years ago traditional Chinese medicine documented the values of plantain for removing toxins and infections; reducing tumors, boils, and inflammations; and eliminating pain. It contains tannins, which help move toxins held in the tissues out of the body and into the urine. Inflammations are drained and pain lessoned. The whole plant including the seeds is recommended as a kidney tonic, for eliminating phlegm from lungs, and clearing heat. Classically plantain is also used to rid the body of headaches, blurred vision, rheumatism, infectious diseases, and chronic constipation. A simple way to keep the bowels moving is to grind the seeds into cereals or smoothies to assist elimination.

Timothy Lee Scott, in his book *Invasive Plant Medicine*, honors plantain’s ability to actively protect the body from unwanted bacteria, viruses, fungi, parasites, and cancer due to its antimicrobial nature. Plantain is exceptionally rich in antioxidants and micronutrients for chelating heavy metals in the tissues and removing them from the body. A study from

Taiwan investigating plantain extracts on human leukemia, lymphoma, and carcinoma cells shows that *Plantago* species inhibited their effects. The study concluded that plantain has antileukemia and anticarcinoma activities that support immunity.

Sebastian Kneipp, one of the nineteenth century founders of naturopathic medicine, used plantain (called ribwort) juice for wounds and rapid healing of many external ailments of the body. In the late 1800s in his book, *Thus Shalt Thou Live*, he writes about the healing power of plantain: “The plant sews the gaping wound together with golden thread and rust never gathers on gold so all putridness and proud flesh flies from ribwort.”

He also used the juice for internal healing: “The effects of this plant on interior parts are not less advantageous. Would that hundreds of people would gather these medicinal leaves in spring or summer, crush them, press the sap out of them, and drink it! Numberless interior complaints, which shoot up like poisonous mushrooms out of the impure blood and the impure juices would not arise. Those are wounds which truly do not bleed, but which are in many ways more dangerous than bloody ones. The dried leaves of ribwort yield likewise a splendid tea against interior phlegm-obstructions.”

Recipes

Plantain Breakfast Porridge

2 cups water
½ cup plantain seeds, ground fine
1 cup oats
½ cup raisins, soaked
1 teaspoon cinnamon
1 banana

Bring water to a boil. Turn off heat. Add the plantain seeds and oats to the water and stir periodically. Add in the raisins and cinnamon. Before serving, slice in the banana and feast on the marvelous healing properties of the wild plantain.

Plantain Peppers

2 red peppers, sliced vertically
2 avocados, sliced
1 cup plantain leaves, diced
½ cup sliced onion
½ cup cashews
½ cup kalamata olives
1 lemon, juiced
Dash of black pepper
1 cup alfalfa sprouts
Plantain seed stalks

Cut the two peppers vertically and slice the avocados into the peppers. Sprinkle the diced plantain onto the avocados. Add the onion, cashews, and olives to the top and drizzle with lemon juice. Add a dash of fresh ground pepper and serve this wildly wonderful live meal to the ones you love. Garnish each serving with alfalfa sprouts and a seed stalk.

Plantain Raisin Pecan Salad

1 head of cauliflower, diced
½ cup chives, diced
2 cups plantain leaves, diced
1 cup pecans
½ cup raisins, soaked

Dressing

1 lemon, juiced
1 teaspoon salt
1 cup raisin soak water
2 tablespoons honey
½ avocado

Dice the cauliflower, chives, and plantain together and place in a bowl. Add the pecans and raisins. Blend all the ingredients of the dressing together and drizzle over the salad. Enjoy!

Plantain pumpkin bread

Plantain Pumpkin Bread

½ cup plantain seeds
½ cup sesame seeds
½ cup pumpkin seeds
½ cup flaxseeds
1 teaspoon salt
2 tablespoons honey
2 apples
½ cup dates
1 cup fresh pumpkin

Soak all the seeds for eight hours. Drain off the water and grind all the ingredients in a food processor. Shape into loaves on a dehydrator sheet and dry for four to eight hours or place in the sun for a day on a hot rock. This hardy bread makes great traveling food and sustain a high energy for adventures.

Plantain Juice

1 cup plantain leaves
3 cups water
1 apple (optional)

Blend together and strain out the pulp. Use the juice as fresh as possible. This juice can be used as a healing wash or as a daily juice.

Plantain Mango Lassie

1 ripe mango
½ cup plantain leaves
1 teaspoon plantain seeds
½ cup cashews
2 tablespoons honey
1 teaspoon vanilla
2 cups water

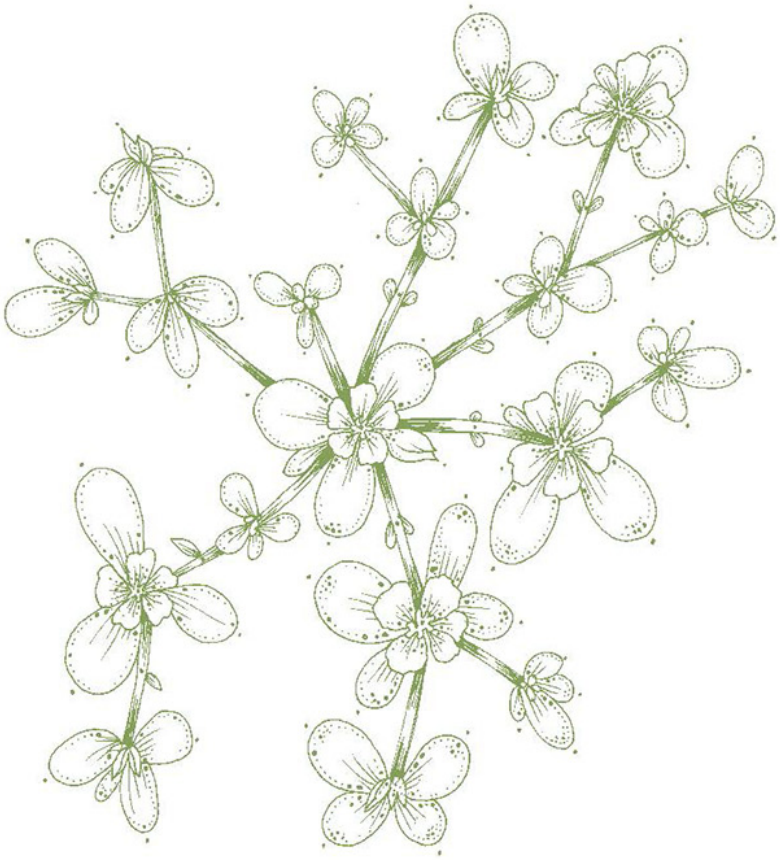
Blend all ingredients until smooth and chill before serving. This is a decadent treat with a healing dose of plantain infused in the matrix.

Festive Banana Plantain Smoothie

2 bananas (frozen optional)
1 cup plantain leaves
3 cups almond milk (homemade is best!)
1 teaspoon plantain seeds, soaked
½ cup dates, pitted
1 cup seasonal fresh fruit
Nutmeg sprinkles

Blend all ingredients until smooth and before serving sprinkle a dust of nutmeg on each of the glasses.

PURSLANE



May purslane nurture a sacred space for the germination of our wild wisdom.

“Purslane is juicy and pretty
Grows in the cracks of every single city”

Purslane

Family: Portulacaceae

Latin Name: *Portulaca oleracea* (*port* means “gate,” referring to the seed capsule that opens like a gate, and *oleracea* means “eaten as a cultivated herb or kitchen vegetable”)

Related Useful Species: Golden purslane (*Portulaca sativa*), pink purslane (*P. pilosa*), cultivated purslane (*P. grandiflora*), sea purslane (*Atriplex portulacoides*), Iceland purslane (*Montia fontana*)

Global Common Names: English (purslane); Spanish (verdolaga); French (porcellana); Italian (porcillac); Albanian (burdulla); Greek (andrakla, glystrida); Portuguese (baldroegas); India (sanhti, punarva, kulfa); Chinese (ma chi xian)

Purslane

Description

There are more than fifty species of purslane growing worldwide, although *Portulaca oleracea* is one of the most commonly widespread varieties found in temperate and colder climates. Purslane is a low growing fleshy succulent herb. It often has reddish stems that spread horizontally across the ground. It has stems that branch out from a central root and create a mat over the ground. The leaves are smooth and shiny in a teardrop shape that is more narrow where it meets the stem and wider on the outside edge. They are

juicy and plump with liquid. Each leaf attaches directly to the reddish stem without a stalk and they are both alternately and oppositely attached. In colder climates purslane emerges from the winter’s hibernation only once the temperatures increase in heat toward late spring or summer. In warmer climates, it grows year-round as a perennial.

The flower is delicate, small, and yellow with five petals. It only opens for a short time in the presence of bright sun. The seeds are tiny, round, and black. They are formed in cuplike containers after the flowers have completed their growth cycle. The little black seeds spill out of their container once ripe. One plant can produce more than fifty thousand seeds. The seeds have evolved to endure over time and ensure reproductive success. Each seed has the ability to survive over forty years in a state of dormancy before germinating.

The whole plant is considered a prostrate weed, which means it grows low to the ground. The stems are reddish and the roots are whitish or light yellow in color. The roots reach down close to 12 inches in depth and spread out in all directions in a radius of about 6 inches from the center. It is considered a primary succession plant and is one of the first crops to find its niche in barren lands. It is a beneficial plant that helps protect moisture from leaving the ecosystem. As a ground cover plant, it protects the ground fertility by keeping water from evaporating and wind from blowing away precious developing topsoil. As a succulent ground cover, it supports other crops such as cultivated vegetable plants from experiencing drought conditions by creating a humid microclimate. Purslane’s roots are taproots with stringy rootlets reaching out to bring up nutrients and help break through hard soils all while stabilizing the moisture in the soil.

Costa Rican purslane

Purslane, although a succulent, has also evolved in hot and dry environments. When it becomes stressed by low water availability, purslane changes to a photosynthesis process using Crassulacean acid metabolism (the CAM pathway). This process allows purslane in the evening hours to trap carbon dioxide with its leaves and convert it into malic acid. During the daytime, the malic acid is converted into glucose. Because of this characteristic, purslane leaves will taste different in the morning than in the evening. In the morning purslane leaves contain as much as ten times more malic acid, making them very sour tasting. If you prefer a milder tasting purslane, harvest your greens in the late afternoon and if you want more zing to your recipes, gather the leaves at dawn.

Current Uses

Purslane may often be considered a garden weed to discard but if one is wise to the many benefits of purslane, it becomes a highly prized harvest. Purslane is viewed as a jackpot on our farm, and is delicious at all times throughout the year. It has a very mild and agreeable sour flavor that enriches salads and adds juice and flair to many of our dishes at the café. I harvest the whole above-ground parts and leave the root in the ground to keep growing. I do not purposefully plant purslane, but luckily it manages to find a way into my greenhouse beds, flowerpots, and vegetable starts.

Nearby farms call me to harvest their purslane crop before they weed whack it out. I gladly accept; it grows as a mini ground cover that provides an easy harvest. Depending on where purslane is growing, the juicy plant can also taste lightly salty. When I use purslane in my recipes, I rarely separate the parts from each other. I love to use the whole upper plant, including the leaves, stems, flowers, and seeds.

One year there was so much purslane growing on my friend Carl's land that he harvested a 20-gallon bucket and brought it to me. I felt rich and somewhat overwhelmed with his purslane gift. What was I to do with all of it? I tapped into some creativity. My friend Bevan loves our sauerkraut and likes to trade his homegrown vegetables for some of our homemade kraut. We were out of cabbage and I decided to try to make purslane sauerkraut this time. I mashed up the purslane with some salt and packed several gallon glass jars with the slimy mixture to culture for seven to ten days. In about a week's time, the smell was telling me it was time to investigate and unpack the jars. It smelled great, just like any sauerkraut. It looked a little different, full of leaves, stems, and rather green, but the taste was wonderful. The major difference was the texture; purslane sauerkraut is much more slimy. It is more like *natto,* a slimy Japanese fermented soybean dish. Bevan was a willing guinea pig for tasting our wild weed kraut and he even acknowledged he was better off from the whole experience. He obviously liked it because he ate the whole jar and asked for more! The wild beneficial nutrition from the purslane outweighs plain cabbage in its healing and nutritive value. I salute purslane and recommend experimenting with its myriad uses. When there is a local bounty, culture the remainder of what is not eaten fresh. The purslane will store for months by fermenting it and continues to offer high levels of vitamin C, enzymes, and omega-3 fatty acids in addition to a host of other nutrients throughout the winter months when they are needed the most.

During the summer season, I use purslane as a soup base, a cracker ingredient that would become the binder of the other ingredients, and even as a dessert. Purslane makes a wonderful base for a lemon pie, as it creates a slightly gelatin-like texture. I add lemon and honey, to make the pie a sweet and sour delight. The crust is a lightly "buttery" crust made of buckwheat, coconut oil, a pinch of salt, and dates. The filling is simply purslane, honey, and lemon. Blend the filling together and pour it into the crust. Chill for an

hour and serve this divine purslane lemon pie! If a slight thickener is needed, you can add half an avocado. Another recipe included later in this chapter is a purslane peach pie—also divine!

Purslane is one of the “beauty plants.” It supports our beauty both from the inside by ingesting it and by applying it to our bodies externally. Its succulent nature is full of mineralized water and nutrients, making it the perfect facial, addition to bathwater, and hair and skin conditioner. When it is in season, I love to harvest purslane daily and use it as part of my self-care practices. When I make a purslane juice for breakfast, sometimes I strain out the pulp and wash my face with the poultice. Purslane reminds our skin and tissues to be turgid, toned, and hydrated. When we make purslane part of our daily rituals both internally and externally, we start to embody purslane’s gifts of handling stresses easily and mirroring its beautiful nature of lushness.

History

Purslane is thought to have originated in Persia and India. However, varieties of purslane are considered native to Canada, Greenland, and Iceland. It continues to be cultivated by humans for food and for landscaping purposes throughout the world. Archeological findings point to purslane being utilized as a food source back in the seventh century BC by the discovery of seeds in many prehistoric sites. There were purslane seeds discovered in lake deposits in Ontario dating back to the mid-1400s. This is evidence that purslane was growing in North America before the arrival of Columbus in the fifteenth century. In Australia the native Aborigines gather the seeds of purslane in abundance and make seedcakes as a nutrient-rich travel food.

In the time of ancient Greece, the early plant scientists including Hippocrates, Galen, and Dioscorides highlighted the benefits of purslane for human health. In their writings and research they referred to purslane as being an important treatment for reducing fever, easing stomach problems, and healing wounds. The seventeenth-century monk Agapius Landus regarded purslane as a valuable remedy for preventing colds—his recipe included purslane, mustard, garlic, and basil.

Purslane was a common ingredient in some of the traditional recipes of ancient Europe. The Italians back in the 1200s promoted purslane for use in

early cosmetics and beauty remedies. Greeks used purslane in their culinary recipes by frying the greens with feta cheese and other veggies and meat. The French are known for their famous French sorrel soup and cut the acidity of the sorrel with the milder purslane. Albanians prepare purslane like cooked spinach and the Portuguese used it as a soup ingredient. Many of these purslane recipes are still alive and utilized today.

There are over forty varieties of purslane currently being cultivated worldwide. It is still being eaten today throughout much of Europe, the Middle East, Asia, and Mexico. In my travels I have found purslane being sold at farmers' markets in Japan, Mexico, and California. The species *Portulaca sativa* is used like the species *P. oleracea*, but tends to not be as hardy and adaptable to the cooler climates. *Portulaca pilosa* is also edible and widely enjoyed by different cultures; however, many of the other species have not been widely documented except for landscaping purposes.

Purslane has gained some popularity by the getting the attention of writers and visionaries. It was recorded as being Gandhi's favorite food. Gandhi encouraged sustainable living practices and voluntary simplicity, and eating the local weeds growing nearby is a beautiful example of both goals. Henry Thoreau, the nineteenth-century writer, ate it when he was staying at Walden Pond and even mentioned purslane in his classic book, *Walden*, written in 1854: "I have made a satisfactory dinner . . . simply off a dish of purslane. . . . I learned that a man may use as simple a diet as the animals and yet retain health and strength. . . . Yet men have come to such a pass that they frequently starve, not from want of necessaries, but for want of luxuries."

Edible Uses

Purslane is documented as being one of the most nutritious plants on the Earth. It is exceptionally rich in dietary fiber, vitamins, and minerals. It is high in vitamins A, B, C, and E; B complex including riboflavin, niacin, folate, and pyridoxine; iron, beta-carotene, and lithium. It has approximately six times more vitamin E than spinach, seven times more beta-carotene than carrots, and is composed of 2.5 percent protein. Purslane is relatively low in fats. It is a superior source of vitamin Q; 100 grams provides 44 percent of the recommended daily allowance; this is known for being the highest of any

vegetable. Additional key minerals abundant in purslane include magnesium, calcium, and potassium. One serving provides enough of each of these nutrients for the day in accordance with the official recommended daily allowance of 2,000 milligrams of calcium and 8,000 milligrams of potassium.

Purslane also has more omega-3 fatty acids than any other known plant on Earth. In the book *The 150 Healthiest Foods on Earth*, Jonny Bowden considers purslane to be one of the most nutritious vegetables to include in your diet. One cup of purslane contains 400 milligrams of omega-3. It has more omega-3 fatty acids than even fish and is a far safer food because of the risks that seafood has with containing mercury and other toxic heavy metals. It contains 8.5 milligrams of omega-3 fatty acids for every gram of weight. According to a study at the University of Texas at San Antonio, purslane contains ten to twenty times more melatonin, an antioxidant, than any other fruit or vegetable their lab tested.

Omega-3 fatty acids are key to maintaining a state of optimal health. They are an important factor in healthy cell membranes and in particular in increasing the ability of the neurotransmitters dopamine and serotonin to communicate with the rest of the body. Omega-3 fatty acids are polyunsaturated fats that help increase clarity of mind and regulate moods. I think of purslane as a happy mood enhancing plant. Not only does it make us happy just by requiring us to go outside and gather the purslane, but by eating it, natural mood-elevating hormones are activated giving us a sense of joy and contentment for being alive.

Further research indicates that omega-3 fatty acids are anti-inflammatory and have proven beneficial for preventing heart disease, neurodegenerative diseases including Alzheimer’s, Parkinson’s, arthritis, and diabetes, and strengthening the immune system.

Purslane contains 92 percent water, making it an ideal hydrating food. When water is contained within our food sources, we are accessing some of the best water available. The water in purslane is alkaline, electrically charged with life-enhancing enzymes and rich in minerals. In addition to its abundant water content, purslane is high in plant fiber and low in calories, making it an ideal food for balancing a natural weight while replenishing nutrients.

Purslane is a rich source of mineralized water

Medical Actions

- Antiscorbutic: provides vitamin C
- Depurative: reduces impurities or heterogenous matter
- Diuretic: increases the flow of urine and secretions
- Febrifuge: reduces fever
- Anthelmintic: destroys parasites
- Antibacterial: inhibits the growth of bacteria
- Anti-inflammatory: reduces swelling and inflammation of the tissues

Medicinal Uses

Purslane is a great medicine plant and can be used in ways similar to aloe vera. It is a succulent that helps hydrate the skin, heal burns, sun sensitivities, cuts, and any skin irritations. The raw fresh juice of purslane can be squeezed directly on wounds and sunburns to assist in their healing quickly. Purslane is cooling and makes a fantastic poultice for inflammations and swelling from injuries.

In addition to being used as an external poultice, healing will proceed much quicker when purslane is used internally as well. I recommend making

a juice from the leaves and stems in a blender diluted with water and sweetened with an apple. The juice can be a little slimy in texture, but if enough water is added, it goes down easily and is pleasant. It can also be used as the base of smoothies or gazpacho soup to benefit from its medicinal qualities in an enjoyable way.

Purslane ranks high in vitamin C levels, making it valuable for preventing the common cold, sinus infections, bronchitis, and clearing lung congestion. Purslane is a great overall tonic to strengthen the immune system. In medical texts, it is documented as healing stomach ulcers, dysentery, and infections of the skin. Consumed as a fresh juice, purslane tones the bladder and the prostate and is beneficial for helping heal dry coughs, shortness of breath, and for quenching severe thirst.

Vitamin E is also abundant in purslane and about a handful juiced or in a salad is enough for the recommended amount per day. Vitamin E is essential for healthy skin, teeth, nails, and hair. Purslane is exceptionally high in vitamin A, which is a powerful antioxidant and is particularly beneficial for improving vision, strengthening the capacity of the lungs, and oral health. Vitamin A is another important nutrient for beauty and health. It contains more vitamin A than most dark greens. When vitamin A is eaten through food sources, it helps replenish skin cells, tissues, and organs and protects the mucous membranes of our bodies. Purslane also supports the body in producing significant amounts of glutathione and superoxide dismutase. Both of these compounds slow down the aging process by maintaining healthy elasticity of the cells, eliminating toxins and free radicals.

Purslane mashed into a cooling compress alleviates headaches, applied to gout symptoms reduces swelling and pain, and when taken internally in the form of juice, lessens the cramps of muscles and moon cycles. The fresh plant chewed eases teeth sensitivities as well as helps tighten loose teeth and receding gums. In a moment of need it will stop bleeding and internal hemorrhaging. Purslane is a rich source of melatonin, a hormone that our bodies manufacture and contains ten to twenty times more than most vegetables. Melatonin helps regulate our bodily rhythms such as sleeping patterns and seasonal regeneration. Eating sources of melatonin, such as in purslane, supports our body’s ability to recover from traveling and fast-paced lifestyles.

Recipes

Purslane Sauerkraut

4 cups purslane
1 tablespoon salt

Follow the traditional sauerkraut recipe but using purslane instead of cabbage. This kraut makes an unusual slimy textured ferment. The flavor and nutrition is off the chart in benefits. The texture is similar to many traditional Japanese dishes such as *natto*. For some, it may be an acquired texture/taste—but for me, I truly love it! It makes a wonderful sour side dish to go on crackers. Add a slice of avocado and you have a delicious open-face sandwich.

Pickled Purslane

3–4 cups purslane
3 cups apple cider vinegar
3 cloves garlic
1 tablespoon peppercorns
1 tablespoon honey
1 tablespoon salt
1 cup water

Chop purslane lightly and combine in a quart jar with all the other ingredients and top off with water. Place on the lid. Store in room temperature for one week and then move to the refrigerator for indefinite storage. Use the pickled purslane as a side garnish to most recipes to give a sour picklelike delight!

Purslane Sunny Crackers

½ pound flaxseeds ,soaked
¼ pound sunflower seeds
1 cup parsley
2 cups purslane
1 teaspoon salt
Water (3 cups for every 2 cups of flax)

Blend the flaxseeds with the water to initially break down the seeds. (I do not worry about all the seeds being blended.) Grind the rest of the ingredients with a minimal amount of water. Stir into the flax and shape into circles on dehydrator sheets. Dry overnight at under 115 degrees.

Walnut Purslane Coleslaw

Coleslaw

½ head green cabbage, shredded
½ cup walnuts
½ cup dried cranberries, soaked
1 cup purslane, diced
2 carrots, shredded

Dressing

2 teaspoons vinegar
½ teaspoon salt
1 tablespoon honey
½-inch piece ginger
3 tablespoons water
1 avocado

Combine the coleslaw ingredients into a bowl and set aside. Blend the dressing ingredients and stir into the bowl with the coleslaw. Marinate for one hour before serving, if possible, but either way this delicious side salad is enough for a whole meal of wild goodness!

Purslane Peach Pie

Crust

½ cup coconut flakes
½ cup almonds
½ cup buckwheat groats
1 tablespoon coconut oil
2 cups dates
Pinch of salt

Filling

2 cups purslane
2 cups peaches
1 lemon, juiced
2 tablespoons honey

Make the crust first by grinding all the ingredients together in a food processor and pressing the dough into a pie pan. Blend the filling ingredients and pour into pie crust. Chill for one hour. Garnish with sliced peaches and a sprinkle of purslane leaves.

Purslane peach pie

Purslane Lime Sorbet

2 cups purslane
2–3 limes, juiced
1 avocado
½ cup honey
Pinch salt

2 cups water

Blend all ingredients until smooth and creamy. Place mixture in a metal bowl and store in the freezer. Stir the sorbet every hour until it firms up. Serve with a garnish of fresh purslane for a divinely nourishing cooling treat!

Purslane Gazpacho

2 cups purslane
1 tablespoon fresh basil, diced (for garnish)
1 tablespoon purslane, diced (for garnish)
3 tomatoes (one tomato, diced)
1 cucumber
1 celery stalk
1 lemon, juiced
3 scallions
1 teaspoon chili pepper
1 teaspoon salt
1 teaspoon Italian seasoning
1 avocado, diced

Blend all ingredients except the avocado and one tomato and the garnishes into thick chunky puree in the blender. Dice the remaining tomato and avocado and stir in by hand. Garnish the gazpacho with freshly diced purslane leaves and basil leaves and serve with purslane sunny crackers (see recipe above).

Purslane Lemon Elixir

1 cup purslane
1 lemon, juiced
2 tablespoons honey
5 cups water

Blend all ingredients and only if desired strain out the pulp. Otherwise enjoy this soothing internal elixir for optimum health benefits!

Purslane lemon elixir

Purslane Shampoo

2 cups purslane, aboveground parts
1 cup water
Essential oil (optional)

Blend the purslane with the water in a blender and strain out the fiber. Apply this hair strengthening gel-like shampoo directly to your scalp and massage it in for as long as you have time. Rinse off and experience extra sheen and vitality in your hair.

Purslane Lotion

1 cup purslane leaves
1 cup water
2 tablespoons coconut oil

3 drops essential oil of your choice
1 avocado (optional)

Blend the purslane leaves with the water and strain out the fiber. Add the warm coconut oil and essential oil and mix in by hand. If you prefer a thicker lotion add liquid back into the blender and thicken with avocado. This homemade lotion regenerates and heals the skin quicker than any commercially formulated lotions!

THISTLE

May thistles support the direction of money, time, and energy toward regenerating the health of planet Earth through global awareness and appreciation of weeds, sustainable living projects, organic land stewardship practices, and simple, beautiful, Earth-based lifestyles.

“Don’t be afraid of the prickle of the thistle
Drink down the juice, it will make you want to whistle

Like a wild seed winging through the air
Waving its arms like it just don’t care
Put ’em up!”

Thistle

Family: Asteraceae
Latin Name: *Carduus nutans* (the Latin translation means “nodding thistle”)
Related Useful Species: Bull thistle (*Cirsium vulgare*), Canadian thistle (*C. arvense*), sow thistle (*Sonchas oleraceus* and *S. asper*), artichoke thistle (*Cynara cardunculus*), milk thistle (*Silybum marianum*), blessed thistle (*Cnicus benedictus*)
Global Common Names: English (thistle, musk thistle); Spanish (cardo); French (chardon); German (distel); Portuguese (cardoon); Greek (kaktos); Latin (cactus); Italian (cardy); African (kharshaf, coques); Roman (carduus)

Musk thistle

Description

Thistle has a sturdy noble character and distinct identifying features. Their most familiar feature is the sharp spines found along the edge margins of their leaves, stems, and even flowering head bracts. Most of the varieties of thistles grow well in disturbed soil conditions and have adapted to being an important ecological succession plant. Luckily all the thistles have highly nutritive and medicinal qualities, making them a beneficial presence to

humanity even despite their prickly nature. Thistles can be annuals, biennials, and perennials depending on the species. Sow thistle (*Sonchas oleraceus*) is an annual, musk thistle (*Carduus nutans*) and bull thistle (*Cirsium vulgare*) are biennials, and Canadian thistle (*Cirsium arvense*) is a perennial.

Thistles are erect prickly natured plants that grow anywhere from 1 to 5 feet tall. Like the dandelion, also in the Asteraceae family, the thistle flower head is made up of hundreds of tiny flowers each maturing into a seed with a fluffy winged end to help it fly when ready. Multiple flowers come from one plant, but have only one flower head per stem. The flower is surrounded by spiny bracts, which develop into hundred of seeds that take flight in the wind when they come into maturity. The thistle flowers can range in color from the most common purple to white and yellow depending on the species.

The noble musk thistles

The thistle stalk is round with a tender pith in the center when the plants are young and ages to become hollow, tough, and almost woody when the plant is mature. When the stalks are young before they have set into flower, the stalks can be completely filled in with a juicy, light green plant marrow. This is the ideal stage for harvesting the stalks for food.

Each seed is attached to a downy pappus, a white umbrella-like fiber, by a slim stalk. The narrow seed at the base of the white fluff is flat, brown, and oval shaped. It is pointy on either end, helping it to land and lodge itself into the soil for the potential opportunity of sprouting, which it is very good at! The seeds turn into the cotton ball shape that easily scatters with the encouragement of the wind.

Thistle plants have deeply lobed green leaves that are prickly to the touch due to their pointy spines covering the edges and tops of the leaves. The prickles are also found on the stems and flower bracts. An important key to remember is the back spine of the majority of thistle leaves is smooth and is free of spines; this feature makes it the ideal place to grab when using bare hands for harvesting.

Thistle roots are whitish and due to their deep, tapering nature aerate the soil so underground organisms can thrive. With almost every thistle that I have personally harvested, I have discovered an earthworm tangled in with its root ball dirt mass. I find this a true blessing and a sign of the amazing permaculture work that the thistle provides the Earth and all living beings. The thistle root is a powerful force helping to break up compaction and aerate the soil while creating habitat for other life-forms such as the earthworm to come in and further increase fertility of the ground.

The musk thistle is a biennial plant that forms a rosette of leaves the first year and only in the second year does it shoot up into the flowering stalk. After the flower produces its seeds in the second year, the whole plant dies. The following year it reseeds and develops large basal leaves. The second year it again shoots up into a flowering stalk, blooms a brilliant purple flower, produces seeds, and dies to repeat the process. The seeds are well equipped to reseed and sprout the following year, sustaining the species survival. Another common thistle, Canadian thistle, spreads by the seeds and also spreads by its roots through an extensive rhizomous horizontal root system. The roots of the Canadian thistle are a resource of food and medicine because they continue to reproduce if even only a small part of the root is left in the ground. It has mastered the ability of asexual reproduction and knows the secrets of eternal life.

Current Uses

Thistle is a gem in the rough. The musk thistle is the main thistle most prevalent at my home, and the first year's rosette of large basal leaves is a gold mine for green juice! I love to harvest the green leaves the first year while the plant is still developing its roots because they are most succulent and nutritive at this stage. Because I am required to control the thistle plants on my 2 acres of land due to the county's rules and regulations, I gladly harvest them each year, although I purposefully let some of the plants go to flower for my honeybees and to assure that I will continue to have thistle plants growing on my land year after year.

The county weed manager visited my farm one year as part of a permit process I needed to go through in creating the Turtle Lake Community Farm. When he asked how I controlled the musk thistle on my land, I honestly told him that we eat them. I explained how valuable they are to Turtle Lake Refuge's farmers' market booth. I shared that we make juice from the greens, prepare a fresh snack from the stems, and make chai tea from the root. I explained that these have become popular items at the farmers' market and regularly sell out and therefore was not willing to completely eradicate the species from my gardens. He ultimately was satisfied with my answer that our control method is to eat them and signed off on our weed management plan.

Turtle Lake Refuge continues to use the greens, roots, stems, and flowers for our food preparations in our café as a hands-on example for education about organic land stewardship practices. Thistles have become a symbol of beautiful and healthy lands where honeybees can thrive. Because the roots are an exceptional medicine that support regeneration of the liver and kidney and the greens are one of the most alkaline greens available, thistle provide our societies with the exact cure for many common illnesses that arise from acidic internal conditions.

I was hired as a consultant to visit a couple's land, who were experiencing an out of control weed "problem" and wanted to explore alternative approaches to dealing with it. We walked the land and John, one of the owners, told me about his obsession in trying to kill every one of the thistles on his property with Roundup. He said he was feeling crazed by his drive. The county manager had come out earlier in the season and let him know that he needed to eradicate a host of species from his land. He shared with me that he considered himself a peaceful man and this mandate by the

county was leading him into an intense obsession in killing. He spent a good part of his life studying spiritual teaching from around the world and felt a deep kinship with life and the sacredness of it.

As we wandered the land, I shared all of the medicinal values of many of the plants he was making so much effort to eliminate. As we walked by one area of his land, he had a sweat lodge made of willows. In the very center of this lodge was a large, vital, and healthy thistle plant. The significance of this thistle and in particular where it was growing hit home for him. I went over and harvested the leaves from the back spines to avoid the prickles and we brought it back to the house. Using his blender, we made thistle juice. We placed in about eight thistle leaves, one apple, and a peeled lemon. We filled the rest of the blender with water and blended well. We strained out the pulp, which prevented any prickles from getting into the juice, and poured each of us a tall glass of the bright green liquid. We made a toast to honoring the sacredness of all life. The couple was very surprised at how delicious thistle lemonade was. We enjoyed the glass of juice and I went on my way. About a month later, John approached me at the farmers' market at the Turtle Lake Refuge booth. He shared with me that he has not sprayed any plant on his land since I came to visit. He said that he no longer has the desire to kill any living species, even the weeds on the noxious plant list. He shared with me that thistle had become an invaluable totem that spoke to him about remembering that all plants were a sacred part of the web of life, even the blessed thistle. We both celebrated his transformation!

Thistle teaches us about clear boundaries. The prickles are only intimidating when you are careless and grab or touch them without paying attention to grace. When they are handled with awareness and care, their prickle is minimal to nonexisting. I see the thistles as a symbol of being the ultimate caretakers of the Earth. There is rarely if ever a justification for applying herbicide to a plot of land. The cost to all of life of the poison far outweighs its corrective intention.

In many countries, and most states in the United States, thistle is on the noxious weed list and is a required plant to keep from growing. But by applying a poison to them to remove them, we only create more harm. It is a tragedy to all life and a negative use of our energy to think in terms of eradication of any species. Thistles are not invaders, but rather good caretakers of land. They aerate the soil, provide a rainbow of nutrients back

into the topsoil each year, provide nectar for the bees and wild pollinating insects, and are very beneficial resources of both food and medicine.

How do we go about maintaining a sense of balance in a given field where thistle has proliferated? First we need to accept it; however, it will change. Thistles are early succession plants and will only hold a dominant position for a period of time. After they have had their heyday of glory being at the helm of the field, they will be naturally balanced by nature. Thistles will be “taken over” by another species that thrives in a more fertile condition. It is an important realization that humans do not need to interfere with the evolution of nature’s transitions. In the meantime, thistles regenerate the soil’s natural fertility and mineral profile and provide critical forage and habitat for pollinating insects.

Bees taking shelter under thistle flowers

The thistles make great mulch before they go to the flowering stage. The big older leaves protect the soil from drying out due to wind and dry climates, by laying on the ground and providing soil cover. In the western United States, thistles are widespread and grow in many open fields that have been overgrazed by stock animals. Harvesting them in mass quantity may be overwhelming and nearly impossible when a farmer is dealing with hundreds of acres, and spraying them may seem like the obvious solution

due to the threat of the local county enforcing the control of thistle spreading. I would like to suggest a number of other solutions that can be administered to maintain a moderate amount of thistle growing on a given plot of land such as using goats to eat them, using cardboard or straw to mulch them under, harvesting the seed heads, hand digging when possible, and applying a thistle weed remedy (recipe in Chapter 3).

The bottom line, however, is that when we spray a toxic chemical herbicide on the ground to kill any plant we are assaulting all of nature! Not only the individual plant's life, but the entire ecosystem of insects coexisting on and around the plants and all the microorganisms in the soil are affected, leading to a lessening of soil fertility and continued disturbance. Nature sends in the thistle plants to restabilize disturbance. When we interfere, nature has to start all over again and new diverse plant species are further delayed in naturally taking root and finding their niche.

History

Thistle is considered native to the Mediterranean area and was eaten as a primary food by the ancient Greeks and Romans as well as early Africans. One of the larger species of thistle is the common artichoke. Wild artichokes are still found and eaten as a wild food in northern Africa.

Thistles have been the national emblem of Scotland since the 1200s when Alexander III ruled Scotland. They also honored it by including an image of the thistle on their silver coins in the 1400s. The Encyclopedia Britannica, which originated in Scotland, also uses the thistle flower as its emblem. It has been used as a Celtic symbol for nobility and strong character throughout time. According to legend, a Viking army was attempting to invade Scotland. They were in the process of sneaking up at night upon a Scottish camp. One Norseman was barefoot and stepped upon a prickly thistle. He cried out in pain and alerted the sleeping camp to the impending invasion, thereby saving the day for the Scots. Since that time thistles have been honored as a symbol for many important Scottish groups, teams, and national ranks.

When I was recently at Findhorn Ecovillage in Scotland, I gave a presentation about the work I do with Turtle Lake Refuge. I finished my slideshow by serving everyone some freshly made thistle juice with lemon

and apples and told them all that this was Scotland's true national drink. Everyone, although surprised, thoroughly enjoyed the juice! Although thistle is still used as a token icon in the country, ironically it also is now on the noxious weed list and attempts are made to eradicate it from the landscape.

In Norse mythology the thistle was considered to be the lightning plant and Thor, the god of thunder, would protect anyone who used or wore thistle. I find value in this myth still today. Thistle is an amazingly protective guide; it helps create clear sacred boundaries and offers its service to ward off intruding energies that may distract us from our important purposes in life.

Edible Uses

Thistle may look alarming and dangerous and, yes, it is prickly and can be painful to the touch, but underneath the prickle is a fabulous ally for food and medicine. Thistles have so many valuable benefits that it is nature's brilliance to protect it with spines or everyone would eat them. Thistles can be harvested from the early spring with the new basal leaves, through the summer using their stems and flowers, and into the fall and winter gathering their seeds and roots. I harvest thistles at different stages according to when they are ready to eat and make room for other garden plants at the same time.

Thistle flowers are absolutely beautiful, and I am not the only one to think so. The insects, in particular the honeybees and butterflies, love the nectar that it produces. They come in many colors, but many of the thistles have a deep-purple flower. The flowers are sweet and delicious and can be eaten as chewing gum. I love to pinch a clump of the flowers off the main flower head and chew the fluff attached with the colorful top together to create a sweet chewing gum that lasts as long as I feel inspired to chew. First pick some fresh flowers off the stalk by pinching a little off with your fingers. Below the purple color is the white fluff of the seed. Chew all of it. The purple part is where the nectar and sweetness is and the white part, once chewed, becomes the chewing gum that lasts until you are ready to spit it out. It is a great pastime while working on an outside project. The thistle flower helps clean your teeth and provides minerals for reinforcing their integrity at the same time.

The seeds collected and freed of the fluffy fiber end make delicious and nutritious milk. Blend the seeds with water, honey, and vanilla and strain out any pulp. Thicken the milk with another nut or seed if desired. The thistle supports the liver in regenerating healthy liver cells. Milk thistle is a common variety that is often used to make seed milk, but all the thistles can be utilized for making homemade milk as well.

The thistle has a valuable root, which is extremely beneficial for the liver. The roots when they are young and fresh are like a wild potato or a carrot. Eating them fresh out of the ground after washing them is a wonderful food. They are crisp and tender and the taste is mild and enlivening. Many species are taproots although some thistles, like Canadian thistle, spread by a rhizome root system. All thistle roots can be dug and either eaten or used as food when they are young and tender. If they are older, it is best to chop them up and dry them for making tea throughout the winter months.

Thistle root chai

Toasting with thistle root chai, thistle green lemonade, and cactus apple juice

We blend the thistle roots into our homemade chai tea (see the recipe at the end of this chapter). Mix the fresh root with spices and strain out the fibers. By adding honey and homemade cashew milk, this local healing beverage is popular with all ages. The taste is delicious and spicy but with an added grounding mineral-rich component that only the thistle can offer. Our thistle root chai tea at Saturday farmers' markets in Durango sells out each week.

The greens make delicious, mild-tasting thistle lemonade. Harvest the succulent leaves in the early summer, and continue to gather the leaves for juice at any stage of their growing season, because they do not get more bitter with age, as some plants do. Blend them with water, lemon, and honey. Strain out the pulp, which includes the prickles. The flavor is subtle, earthy, and green, and the color is a rich shade of jade. The feeling after drinking thistle juice is one of being fully alert. My body opens to the aliveness of the thistle.

Thistle green juice

Thistle stems are a delicacy. The thistle stalk tastes like a sweeter version of celery. To harvest the thistle stalk when it is still in its prime, choose a thistle that is growing toward flowering but has not yet opened its flower head. With a knife or tough fingers, peel the leaves and spines off the stalk. Inside the outer skin is a succulent, tender, green juicy treat. Once the stem is free from spines, take a bite from the skinny end closest to the flower head. If the fibers increase as you take bites, peel back the outer stringy fibers like peeling a banana and continue to eat down the stalk until the fibers get too tough down at the base nearest to the ground. The younger stalks close to the unopened flower head have the most amount of liquid juice without as much pith in the stem yet. Thistle stalks contain a significant amount of sugars. The stalk is mild in flavor but sweet and juicy. We provide thistle stems at the farmers' market and serve them with lime, chili pepper, and salt like jicama in Mexico.

Although it takes some detailed peeling and patience to remove the spikes, the price at the end is worth the effort. I personally love the whole process. When we have the opportunity to harvest our food right in the field, we benefit from a fully engaged "dwell time" that connects us to our environment and sense of place. My father coined the term "dwell time" for me, which refers to the moments when we can immerse fully into our relationship with the land and all the mystery, magic, and connection that it offers.

Thistle stalks

Thistle stalks are a great source of mineralized water. When we can harvest wild water fully mineralized and still contained within the plant itself, we have found a valuable resource! If you find you are thirsty outside and come upon a thistle, it can be the very blessing to quench your thirst. The thistle gives more than just water; it gives living water charged with minerals. The water found in the stem of the thistle is highly alkalinized. Thistle water is alive with the brilliance of the thistle plant. The cells of the thistle are bursting with fluidity and rich with life force. What a treat to share this fine gift with others who may not be as appreciative of the thistle's values yet.

Tender young stems

Some years ago I led a field trip for a biology class from Fort Lewis College up the Colorado Trail. Not long after we started hiking, we came upon a huge garden of musk thistles in their prime. They were all clustered together along the side of the trail. I stopped and began speaking about the alkaline quality of thistle. Thistle greens are one of the more alkaline greens of any plant. I shared how marijuana and psychedelic mushrooms create the sensation of being “high” through an alkaloid that temporarily gives the body an alkaline experience, although once the effect wears off, the body is actually left more acidic in its chemistry than before. In contrast, I explained that when you juice thistle greens, the thistle offers the body a true alkaline experience that does not go away. The thistle actually shifts the internal body chemistry to a more alkaline state in the long term, and therefore the thistle provides a permanent high that sustains. As soon as I finished my story, about five of the students began harvesting the thistles in earnest and loading their backpacks with the large prickly leaves to explore the wonders of getting high on thistle juice. I personally have found that the practice of harvesting and ingesting most all the wild plants creates a true high for life. When we have a source of wild intelligence coursing through our bodies connecting us to the soil, the sun, the rain, and all the living beings around us, it is effortless to be high on life!

As soon as someone ingests the thistle into their body, they actually become part thistle; indeed, we are what we eat from the subtle to the obvious. The thistle becomes us as the minerals, sugar, water, vitamins, and proteins transform into our cells that make up our body. The exciting realization is that when we eat thistle, the thistle starts to shift the way we think, as if we were the thistle itself. When we ingest thistle, we cannot help but love the thistle in the same way that we love ourselves. Thistle teaches us to embody the natural state of love that it does so effortlessly! Appreciation is a state of being that promotes health. When we can appreciate every plant on the Earth as having an important purpose, we live in a greater state of health and happiness.

Medical Actions

- Cholagogue: increases flow of bile from gallbladder into the duodenum
- Diaphoretic: increases perspiration
- Diuretic: increases the flow of urine and secretions
- Emmenagogue: stimulates menstrual flow
- Febrifuge: reduces fever
- Galactogogue: promotes lactation
- Stimulant: quickens physiological action
- Tonic: restores or increases body tone

Medicinal Uses

Thistles have been used as medicines since early prehistoric times. Thistles offer a vital support for the elimination organs and particularly for regenerating the liver. The roots and the seeds are the most potent part of the thistle as a medicine; however, even the juice of the green leaves and stems is valuable for cleansing the liver and rebuilding vital core health of the entire body. An edible oil can be gathered from pressing the seeds. Use a hand crank press to grind them in the raw form or roast the seeds, crush them finely with a mortar and pestle or coffee grinder, and add them to boiling water. After steeping for a few minutes, scrape the oil off the top. I like to blend the seeds with water, strain out the excess fiber, and then drink the thistle seed milk to benefit from the oils.

Milk thistle (*Silybum marianum*) has been used medicinally for over two

thousand years, most commonly for the treatment of liver disorders such as jaundice and gallbladder disorders. Milk thistle products are popular in Europe and the United States for various types of liver disease including cirrhosis of the liver. Milk thistle is currently being used by HIV-positive patients to protect the liver from diseases such as hepatitis and damage from the drugs taken for HIV or AIDS. A flavonoid in the thistle seed called silymarin is a powerful antioxidant that protects the cells of the liver. Silymarin blocks harmful toxins from entering the liver and helps remove existing toxins. It stimulates liver and gallbladder activity, which regenerates injured liver cells.

Blessed thistle (*Cnicus benedictus*) is recorded in traditional medicine as far back as the early sixteenth century as an appetite stimulant, astringent (toning organs and tissues), blood purifier, choleretic (stimulating bile flow), diaphoretic (stimulating sweating), digestion enhancer, diuretic (increasing urine), expectorant (removing phlegm and mucus), fever reducer, memory improver, menstrual flow stimulant, and salivation stimulant. It was purposely cultivated in the monastery gardens to cure smallpox, malaria, dangerous fevers, flatulence, constipation, and indigestion. It continues to be honored by being an important ingredient in Bénédictine liqueur.

A festive way to honor the medicine of wild thistle growing around your community is to harvest the roots, dry them, and add them to your favorite local hard liquor. We use locally made rum from our area. Fill a glass jar with the dried roots and pour over the local brew. Let it steep in the jar anywhere from a month to a year and enjoy the powerful root liquor with friends as a way to celebrate wild wisdom and your health.

Thistle root elixir

Drinking a cup of thistle root tea twice a day is a great choice to help eliminate chronic headaches. Not only does it support purification, it helps alleviate stomach and digestive problems, gas in the intestines, and constipation.

Thistles currently may be considered the bane of society, and yet the wise ones know that thistle is also the secret weapon to eradicate illness. The alkaline nature of thistle promotes core healing and regeneration, which is especially important in the present modern twenty-first century. Close to 90 percent of human diseases are rooted from an acidic condition within the

body. We are often exposed to pollution, pesticides, and preservatives in our foods. Additional acidity comes from beverages like colas, coffee, as well as refined and cooked foods. Stress is one of the biggest influences that can create an acidic condition in the body.

When we ingest raw greens in our diet, especially in their wild forms from green juices to green salads, we begin to shift our internal chemistry toward alkalinity. Healthy blood is naturally slightly alkaline and supports health through efficient oxygenation of our cells and effective elimination of wastes. When our system is acidic, our blood flow and circulation can slow down. This stagnancy within our system creates a host of symptoms from the common cold to tumors and degenerative disease. A very simple preventative and curative measure is eating local and wild greens and, in particular, thistles!

Celebrate our global wealth by honoring the thistle on all lands of planet Earth. It is a simple way to feel so connected, rich, and safe here on the Earth in these wild changing times. They inspire creative action, the expression of joy, and support us in following our hearts.

Recipes

Thistle Stem Snacks

5 young and tender thistle stems, peeled
Dash of salt
½ lime
Sprinkle chili pepper or cayenne pepper

Choose the thistles you want to harvest when they are young, before the flowers have opened. They may be starting to form a flower bud. Cut a few to sample and get to know the tenderness of the stalks. Once you have mastered the art of choosing the best and most tender thistle stalks, harvest at least four or five. Once you peel them, you will not have as much as you may think, because it is likely that some of the stalk will be too tough. Peel the prickles and the skin off the stem. You want to choose the stems that have the most juice and the least amount of tougher fibers. When you peel the stalks, the tougher parts are on the outside and the most juicy and tender part is in the middle. Simply eat them as is or prepare them into a simple yet

gourmet treat by squeezing the lime juice over the stems, sprinkling a light dash of salt, and an even lighter dash of cayenne pepper or chili powder depending on your taste for spice! Enjoy this taste, reminiscent of Mexico, using local abundance instead of the traditional jicama.

Thistle Flower Fruit Salad

Variety of fruits (bananas, apples, peaches, apricots, cherries, or others)
1 cup fresh purple thistle flowers

Cut off the white fluffy part and use the purple flower tops to decorate the fruit salad.

Take a variety of fruits such as bananas, apples, peaches, apricots, and cherries and chop them together. Add to a bowl and sprinkle in the thistle flowers before serving.

Thistle Root Kraut

1 cup thistle root
1 green cabbage
1 purple cabbage
¼ cup grated ginger
1 tablespoon salt

Grind all ingredients in a food processor or mince by hand. Place in a Crock-Pot and add the salt. Pound the mixture with a wooden dowel until the juices from the roots and cabbage come out. Pack the mixture tightly in a glass jar that is sized to hold all of it without much room left at the top. Press the kraut down with a clean fist or the wooden dowel until the juices are covering the top layer. Screw the lid on lightly so that the juices can flow out if necessary. Place a plate or bowl underneath the jar to catch the excess liquid. Cover the whole jar with a cloth. Leave the jar at room temperature to culture for one week to ten days or until the smell is ripe and ready to be harvested. The roots of the thistle add a wonderful flavor and texture and powerful medicinal value to the kraut!

Thistle Mallow Dandelion Cooler

1 cup mallow leaves
1 cup dandelion leaves

1 thistle stalk
3 cups water
1 cup ice
1 apple (optional)

Blend the leaves of mallow and dandelion with a stalk of thistle, which can include the leaves, flower, and stem. Strain and serve over ice. Delicious just as it is. If you prefer a sweeter drink, add an apple.

Thistle Root Chai Tea

2 cups fresh thistle root, chopped
1 cup cashews
½ cup honey
4 cups water
1 teaspoon cinnamon
1 teaspoon cloves
1 teaspoon cardamom
1 teaspoon nutmeg
⅛ teaspoon cayenne pepper
1-inch piece ginger

Blend all the ingredients until fine and strain with a kitchen strainer or nut bag for a finer consistency. Serve over ice on a hot day or warm on the stove on a cold day for the wisdom of the thistle root to support your optimal health.

Thistle Green Lemonade

2 cups thistle greens, lightly chopped
4 cups water
2 apples (or 2 tablespoons honey)
2 lemons, juiced

Blend well and strain out the pulp. Serve with a sprinkle of thistle flowers on top of each glass. Enjoy fresh!

Long Live Your Liver Tea

1 tablespoon thistle root, dried
1 cup hot water

Dry the roots of your local thistles by washing them, chopping them into smaller pieces, and drying in the sun or an airy location. Once fully dry and brittle, store in a cool, dry, and dark place to maintain their integrity throughout the season. Glass jars work the best, but if there is any concern about the roots not being fully dry, store them in a brown paper bag until completely brittle and crispy. Prepare the dried root by grinding it into a powder with your coffee grinder, adding it to a gourd, and adding hot water. Sip with a maté straw. This tea is a truly loving act for your liver. Drink this morning brew and visualize the amazing gift of your liver! During each sip, offer appreciation to your liver, the vital organ that sustains our abilities to thrive in the unavoidable adverse environmental conditions of the twenty-first century.

Thistle Root Liqueur

1 quart rum or liquor of choice
1 quart dried thistle roots, chopped fine

Add the dried roots to a quart jar. Cover the roots with the rum or other alcohol of choice. Allow the thistle roots and liquor to work their magic together. Brew the root goodness into the alcohol for at least one month and perhaps up to a year for extra strength. I cannot say absolutely if the thistle's beneficial qualities for the liver completely cancel out the stress to the liver from the alcohol. But it certainly has improved the brew. Enjoy a nip of this earthy goodness with friends around a campfire and feel the medicine fire awaken your liver and bring a sense of merriment of wildness.

Thistle Breath

As my birthday present for myself as I approached my forty-fourth year, I chose to dive into a journey of ingesting the wild thirteen plants exclusively for a period of time. I began on the new moon in June and continued until summer solstice, which ended up being sixteen days. I allowed a three-day integration period in the beginning and again at the end to transition into and out of the experience, where I included some other varieties of fresh foods like fruits and vegetables. During the time of deep exploration, I ate only the leaves, stems, roots, and flowers of the thirteen plants along with water. About halfway through this journey, I

was out in the garden lying in the grass and I found a tall, very vibrant thistle that was just about ready to develop its first bloom but it had not matured enough to open yet. After appreciating it for some time while lying on the ground, I decided to harvest this thistle and juice this thistle stalk in my juicer along with some of the leaves as well. It came out as concentrated juice. The flavor was potent but sweet and pleasant as I drank it down.

Very soon after drinking the juice, I was overtaken by the energy of the thistle, its presence and its full embodiment in my body. The thistle basically forced me to lie down, and from the inside out, taught me how to breathe the way a thistle breathes. I became a student of the thistle pinned to the floor in this unexpected breathing lesson for over an hour.

Here is what the thistle taught me. On the in-breath I pull up energy from the Earth through my roots opening in a spiraling action, while at the same time I draw energy down from the sky through my head, also opening into the core of my body. The spiraling energy comes from opposite directions, and opens into my body's center. The inhale channels this energy from both the Earth and the sky into my core and expands each cell in a nourishing spaciousness. On the exhale I send the energy down, reaching my roots deeper into the Earth while at the same time I move the energy up toward the heavens and reach my body ever more tall and connect with my abundant creative nature to bloom.

The amount of energy that I experienced during this exercise was profound. I realize that I normally tend to breathe much more shallowly than this. When I breathe this way, I gain so much more energy on each inhale and exhale and feel so much more spaciousness in my body. Throughout many days of this journey, I was leading my typically busy life of farming, hauling compost, harvesting, teaching, and working at Turtle Lake Refuge and I would feel my blood sugar go low after a lot of physical activity from only eating greens. Because of my commitment to this wild thirteen weed journey, I didn't have the option of looking toward food or stimulants to recharge my energy. Instead I resorted to breathing and in particular using the thistle breath. It worked miraculously well. When I felt tired during my day, I would lie down and breathe the thistle breath. After about five minutes of breathing this way, I felt recharged and ready to go out and dive into work again.

In addition to the thistle breath energizing my body with oxygen and life force energy, I found that it connected me to my surroundings, the sky above me and the Earth below me. The interconnection provided another rich source of energy to recharge my being and brought me into the realization that with each breath I am so connected to the whole cosmos as part of my identity.

Thistle Breath Exercise

Breathe in deeply while visualizing pulling energy up from the Earth through roots connected to your feet. Simultaneously during the same in-breath, visualize drawing energy down from the sky and heavens through the top of your head. This energy comes in to your core from your feet up while at the same time energy comes down from your head, filling your center with energy. Allow yourself to fill up on this energy flowing in from both directions at the same time. Open and expand in spaciousness at your core as the breath fills your body. The spaciousness contains a full sense of peace and vitality.

Along with the opening expansion in the body experienced from drawing the energy in from both down below and up above, visualize a subtle spiraling action taking place at the same time with each direction. With the inhale, visualize the energy that is coming from your roots spiraling up and opening into your core. In the same inhale visualize the energy drawing down from the atmosphere spiraling in and opening into your core. You will notice that the spirals are both opening into the body, creating a great open expansive space, and yet they are opposite of each other.

On the exhale send the energy down into the Earth through your feet in a spiraling action that now reverses and opens out into the Earth. During this same exhale visualize the energy spiraling up and out of your head into the sky. This exhale in both directions, while spiraling out in opposite directions, creates a channel of interconnectivity with your environment of the Earth and the atmosphere. This exchange of energy, the give and take of each inhale and each exhale, is so intimately connected to everything that is. It is a breath that reminds us that we are intimately gaining nourishment and energy from the whole cosmos in each inhale and exhale. The thistle embodies this truth.

This breath is a sustainable breathing technique. It can be practiced daily as often as you can remember to give your attention to it. Eventually it will become a habit. I found that breathing this way on a regular basis keeps me grounded, centered, and energized. It also enhances my intuitive awareness of my surroundings. Engaging in the thistle breath on an ongoing basis creates a conscious exchange with your surroundings that maintains an ability to stay in the sweet spot of life more easily. The practice enforces the connection to both your inner environment and outer environment while at the same time aligning you with the graceful power of the universe.

Closing Thoughts

When we reconnect with the land, exactly as it is today, we find there is so much value and available abundance around us. My intention is to support humanity in reconnecting with our core survival instincts while rapid global changes are occurring in our natural environment. By integrating the wisdom from these wild plants into our daily lives, we also benefit from developing a sense of peace and confidence in our surroundings. Intimately knowing these wild plants and their benefits helps us to reawaken our wild instincts to live in greater harmony with all other species on the planet. They help us feel at home on planet Earth. Because these resilient plants have fine-tuned their ability to adapt and survive in changing environments, they offer this wisdom to us as well from the inside out.

Alpine meadow

These thirteen wild plants can help us accept change in our own lives with a greater sense of ease and trust. They offer a deep-rooted magical connection and communion with life. Embracing the wild plants into our habits opens us to a world of richness and self-reliance. They offer us the

gift of following our footsteps wherever we live on the planet, and give themselves as valuable food and medicine even when nothing else seems to be able to grow. Knowing the wealth that we have in these wild plants, growing around our homes and cities, helps us adapt to change—both to personal and climactic change. These plants are a key to our survival as a free resource available to all of humanity across the globe. May we participate in the generous giving and receiving exchange of the universe as all life supports each other in balance.

Nature is like a flowing river that is tapped into a source far beyond our comprehension. When we align with the power of the flow, we tap into a wise and abundant source of wealth. All nature's plants are wild and free and remind us that we have everything we need to thrive.

Goldenhorn

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About the Author

Photo: Cheryl Foley

Katrina Blair began studying wild plants in her teens, when she camped out alone for a summer with the intention of eating primarily wild foods. She later wrote *The Wild Edible and Medicinal Plants of the San Juan Mountains* for her senior project at Colorado College, where she graduated with a biology degree. In 1997, she completed an MA from John F. Kennedy

University in Orinda, California, in holistic health education. She founded Turtle Lake Refuge in 1998, a nonprofit organization whose mission is to celebrate the connections between personal health and wildlands. She has taught sustainable-living practices through John F. Kennedy University, San Juan College in Farmington, New Mexico, and Fort Lewis College in Durango, Colorado. She teaches internationally at retreats, festivals, and educational and healing events. She is also the author of a self-published cookbook, *Local Wild Life: Turtle Lake Refuge's Recipes for Living Deep*.

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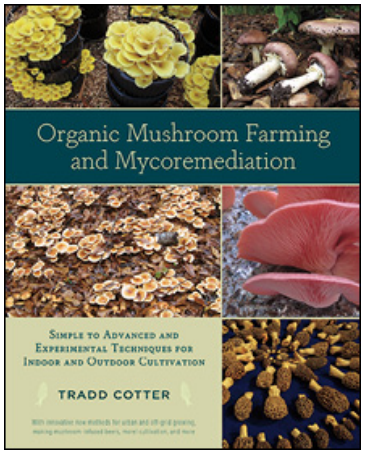
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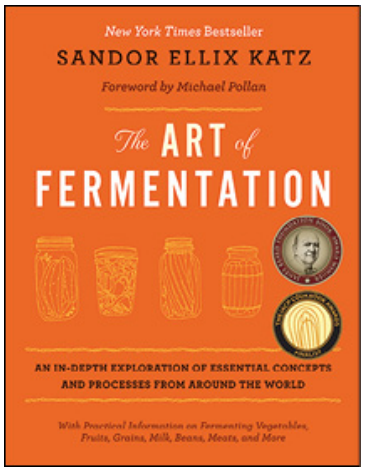
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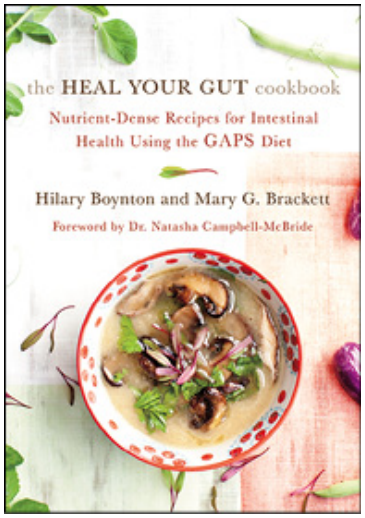
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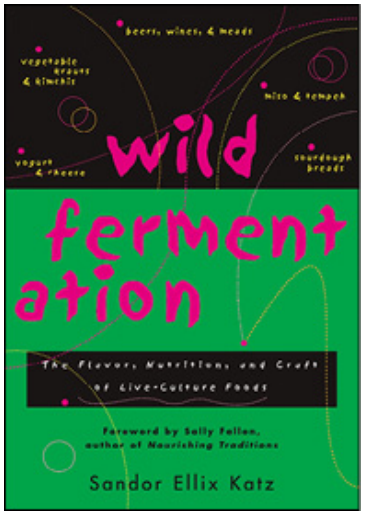

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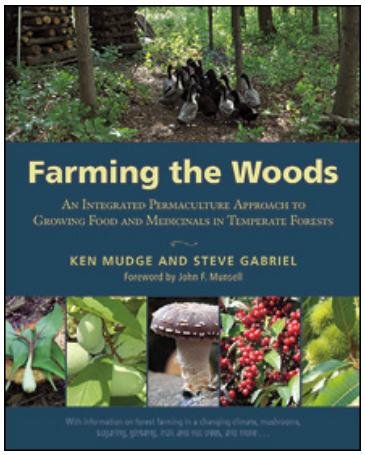
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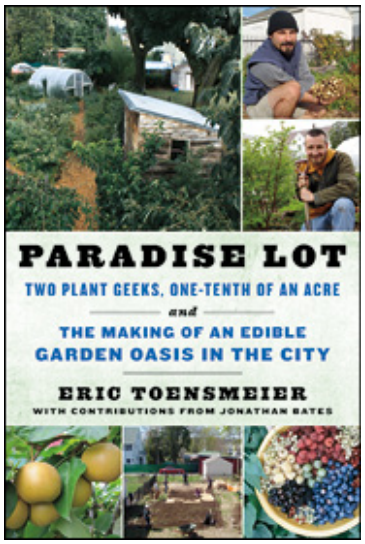
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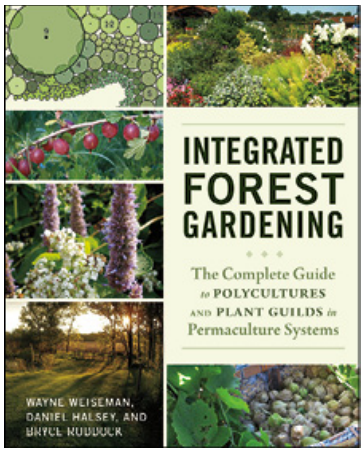

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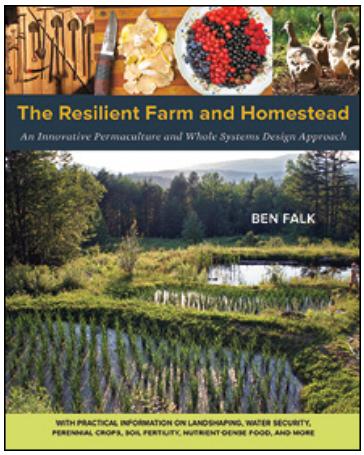

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